

# ACTIVITY REPORT

(May-August 2026)







DEEPAK DHAR, INSA Distinguished Professor at ICTS, was awarded the prestigious **2026 Dirac Medal** of the International Centre for Theoretical Physics (ICTP), recognising his seminal contributions to statistical mechanics and complex systems.

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PETER ZOLLER was elected a **Fellow of the Royal Society (FRS)**, one of the highest honours in science. Prof. Zoller is a member of the ICTS International Advisory Board and was among more than 90 outstanding researchers from around the world elected to the Fellowship of the Royal Society in 2026.



**Summary of Programming Activities** *(For details see following pages)*

Programs/Discussion Meetings held: 16

Academic visitors to ICTS-TIFR: 80

Seminars and colloquia: *(For details see Annexure – A)*

**Summary of Research Activities** *(For details see Annexure - B)*

Papers published: 71

arXiv submissions: 41

## Ia. PROGRAMS

### **Plasma Turbulence: New Challenges from Magnetic Confinement**

Organizers: Amita Das (IIT Delhi), Patrick Diamond (University of California, San Diego, USA), David Hughes (University of Leeds, Leeds, UK) and Rahul Pandit (Indian Institute of Science, Bengaluru) | 24-28 August 2026

### **Bangalore School on Statistical Physics XVII**

Organizers: Abhishek Dhar (ICTS-TIFR, Bengaluru) and Sanjib Sabhapandit (RRI, Bengaluru) | 13-28 August 2026

### **Circuits, Communication, and Proofs**

Organizers: Arkadev Chattopadhyay (TIFR, Mumbai) and Meena Mahajan (IMSc, Chennai) | 10-21 August 2026

### **The Concurrence of Mega-Surveys**

Organizers: Shadab Alam (TIFR, Mumbai), Elisabeth Krause (University of Arizona, Tucson, USA), Subha Majumdar (TIFR, Mumbai), Joseph Mohr (LMU, Munich, Germany), Azadeh Moradinezhad (LAPTh, Annecy, France) and Surhud More (IUCAA, Pune) | 27 July-7 August 2026

### **Summer School on Gravitational-Wave Astronomy**

Organizers: Parameswaran Ajith (ICTS-TIFR, Bengaluru), K. G. Arun (CMI, Siruseri), Bala R. Iyer (ICTS-TIFR, Bengaluru), Prayush Kumar (ICTS-TIFR, Bengaluru) and Alok Laddha (CMI, Siruseri) | 13-24 July 2026

### **Automorphic forms: Arithmetic and Representation Theoretical Aspects**

Organizers: Anilamaja Aryasomayajula (IISER Tirupati), Baskar Balasubramanyam (IISER Pune), Jürg Kramer (Humboldt University of Berlin, Germany) and Anna von Pippich (University of Konstanz, Germany) | 6-10 July 2026

### **Refinements in Enumerative Geometry and Physics**

Organizers: Nitin Chidambaram (Universidad Nacional de Educación a Distancia, Spain), Maciej Dolega (Institute of Mathematics of the Polish Academy of Sciences, Poland), Elba Garcia-Failde (Universitat Politècnica de Catalunya, Spain), Alessandro Giacchetto (ETH Zürich, Switzerland) and Kento Osuga (Nagoya University, Japan) | 22 June-3 July 2026

### **Summer School for Women in Mathematics and Statistics**

Organizers: Nikita Agarwal (Delhi University), Siva Athreya (ICTS-TIFR Bengaluru), Rhythm Grover (IIT Guwahati), Kannappan Sampath (IISER Pune) and Dootika Vats (IIT Kanpur) | 8-19 June 2026

### **Summer School for Women in Physics 2026**

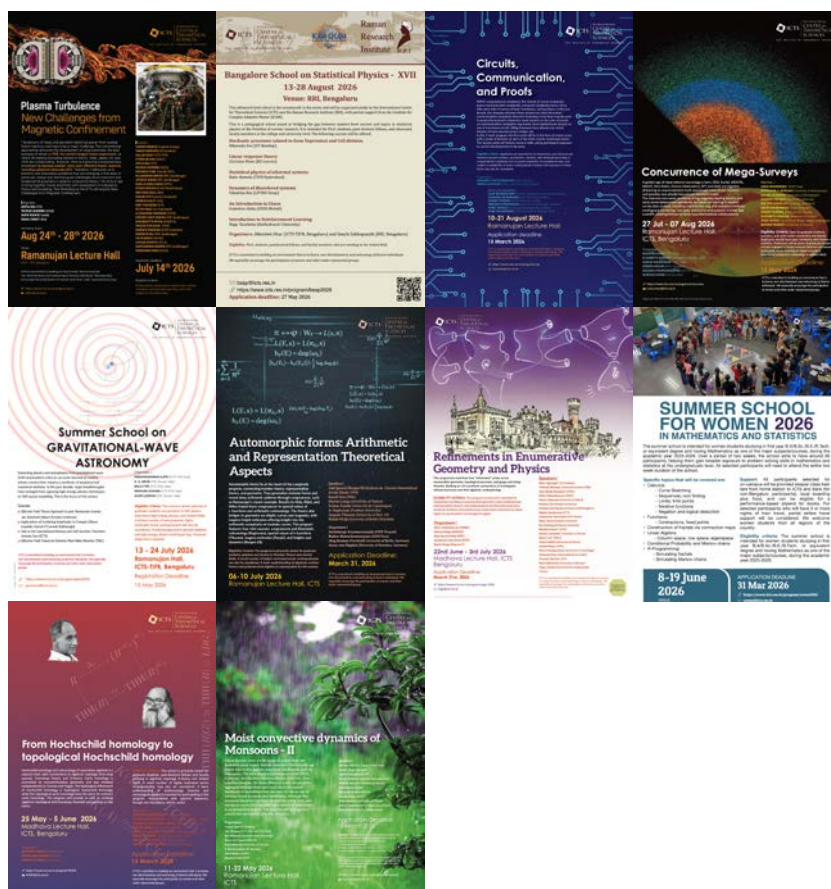
Organizers: Ranjini Bandyopadhyay (RRI, Bengaluru), Mahua Ghosh (Mount Carmel College, Bengaluru), Kripa Gowrishankar (APU, Bengaluru), Sushan Konar (NCRA Pune), Rema Krishnaswamy (APU, Bengaluru), P.K. Mohanty (IISER Kolkata), Rajaram Nityananda (ICTS-TIFR, Bengaluru), Shirish Pathare (HBCSE Mumbai) and Sumathi Rao (ICTS-TIFR, Bengaluru) | 1-10 June 2026

### From Hochschild Homology to Topological Hochschild Homology

Organizers: Somnath Basu (IISER Kolkata), Aritra Bhowmick (Kerala School of Mathematics, Kozhikode) and Surojit Ghosh (IIT Roorkee) | 25 May-5 June 2026

### Moist Convective dynamics of Monsoons - II

Organizers: Gilles Bellon (CNRS, France), Maxime Colin (Leibniz Centre for Tropical Marine Research, Germany), Vishal Dixit (IIT Bombay, Mumbai), Eric Maloney (Colorado State University, USA), Rajat Masiwal (University of Chicago, USA), Divya Sri Praturi (Max Planck Institute for Meteorology, Germany), S. Ravichandran (IIT Bombay, Mumbai) and Jim Thomas (ICTS-TIFR and TIFR-CAM, Bengaluru) | 11-22 May 2026



### **1b. DISCUSSION MEETINGS**

#### Formulating a National Research Roadmap for Accelerated Materials Design: From Generative AI to Self-Driving Labs

Organizers: Niloy Ganguly (IIT Kharagpur), Subhankar Mishra (NISER Bhubaneswar), Devendra Gokul Patil (BITS Pilani, Goa), Ananth Govind Rajan (IISc Bengaluru), Prasenjit Sen (HRI, Prayagraj) and Ravi Prakash Singh (IISER Bhopal) | 31 August-1 September 2026

#### Regularity, Blow-up, and Mixing of Fluid Flow

Organizers: Ujjwal Koley (TIFR CAM, Bengaluru) and Kazuo Yamazaki (University of Nebraska, Lincoln, USA) | 20-24 July 2026

### **Enumerative Geometry and Categorification**

Organizers: Charanya Ravi (TIFR, Mumbai) and Bhamidi Sreedhar (HRI, Prayagraj) | 6-10 July 2026

### **Symposium on Soft and Living Matter**

Organizers: Raghunath Chelakkot (IIT Bombay, Mumbai), Anupam Gupta (IIT Hyderabad) and S Ganga Prasath (IIT Madras, Chennai) | 23 May 2026

### **The Classical Circle Method and the Large Sieve**

Organizers: R. Balasubramanian (IMSc, Chennai), Prahlad Sharma (IIT Kanpur) and Saurabh Kumar Singh (IIT Kanpur) | 4-8 May 2026



## **Ic. LECTURE SERIES**

### **INFOSYS-ICTS RAMANUJAN LECTURES**

#### **The Duality Between Spaces and Categories from the Derived Perspective**

Bertrand Toën (Université de Toulouse, Toulouse, France) | 7-10 July 2026

### **P. RAJAGOPALAN MEMORIAL LECTURES**

*The P. Rajagopalan Memorial Lectures have been established at ICTS through the generous support of Ms. Vidya Rajagopalan (Vice President of Electrical Hardware at Rivian) in honour of her father, Mr. P. Rajagopalan.*

#### **Quantum Entanglement in Nature: From Superconductors to Black Holes**

Subir Sachdev (Harvard University, USA) | 13 July 2026

## ICTS-CALIBRE LECTURES

### Challenges and Opportunities for Infectious Disease Surveillance in India

Rizwan S A (ICMR - National Institute of Epidemiology) | 25 August 2026

### After the Fever Breaks: Chronic Conditions with an Infectious Disease Etiology

Brian Patrick Wahl (Yale School of Public Health, USA) | 25 August 2026

### AI-Native Molecular Intelligence for Biological Discovery and Therapeutic Engineering

Gaurav Chopra (Purdue University, USA) | 4 August 2026



## Id. VISITS OF SCIENTISTS

The following researchers visited ICTS during May-August 2026.

1. **S.A. Rizwan**, ICMR - National Institute of Epidemiology
2. **Brian Patrick Wahl**, Yale School of Public Health, USA
3. **Beverley Jane Mckeen**, Stanford University, USA
4. **Omkar Shetye**, Jagiellonian University, Kraków, Poland
5. **Satyam Sinha**, IISER Pune
6. **Tirthankar Roy Choudhury**, NCRA, Pune
7. **Nachiketha R**, Azim Premji University, Bengaluru
8. **Ajay Mohan**, TIFR, Mumbai
9. **Chetan Prakash**, IISER Berhampur
10. **Debarshi Debnath**, University of Edinburgh, UK
11. **Tejaswi Venumadhav Nerella**, Univ of California Santa Barbara, USA
12. **Aniket Nath**
13. **Satyen Patel**
14. **Onnuttom Narayan**, University of California, USA
15. **Bulbul Chakraborty**, Brandeis University, USA
16. **Raj Kishor Joshi**, Nicolaus Copernicus Astronomical Center, Poland
17. **Vinod Vaikuntanathan**, Massachusetts Institute of Technology, USA
18. **Mandar M. Inamdar**, IIT Bombay, Mumbai
19. **Maria Kuruvilla**, University of Victoria, Canada
20. **Kalpana Panneerselvam**, IIT Madras, Chennai
21. **Ganapathy Baskaran**, IIT Madras, Chennai

22. **R. Shankar**, Institute of Mathematical Sciences, Chennai
23. **Arnab Rudra**, IISER Bhopal
24. **Aaditya Jyotishi**, Azim Premji University, Bengaluru
25. **Ganpathy Murthy**, University of Kentucky, USA
26. **Ravi Shanker**, Institute of Mathematical Sciences, Chennai
27. **Sayantana Sharma**, Institute of Mathematical Sciences, Chennai
28. **Harshit Pandey**, Institute of Mathematical Sciences, Chennai
29. **Shamim Haque**, IISER Bhopal
30. **Subir Sachdev**, Harvard University, USA
31. **Rahul Pandit**, Indian Institute of Science, Bengaluru
32. **Bijay Agarwalla**, IISER Pune
33. **Siddhartha Mukherjee**, IIT Kanpur
34. **Mahesh Bandi**, Okinawa Institute of Science and Technology, Japan
35. **Nicolò Defenu**, ETH Zurich, Switzerland
36. **Mohammed Ismail**
37. **Manoj Nandagopal**, Caltech, USA
38. **A. Raghuram**, Fordham University, New York, USA
39. **Pradeep Kumar Mohanty**, IISER Kolkata
40. **Hrishikesh Kulkarni**, IISER Pune
41. **Douglas Troy Li**, University of Pennsylvania, USA
42. **Vidyanand Nanjundiah**, Centre for Human Genetics, Bengaluru
43. **Sourin Das**, IISER Kolkata
44. **Poonam Mehta**, Jawaharlal Nehru University, New Delhi
45. **S. Ravichandran**, IIT Bombay, Mumbai
46. **Shiroman Prakash**, Dayalbagh Educational Institute, Agra
47. **Srujana Kaluve**, IISER Mohali
48. **Anwasha Behera**, IISER Kolkata
49. **Ajit Mehta**, Chennai Mathematical Institute, Chennai
50. **Jedediah Pixley**, Rutgers University, USA
51. **Rakesh Venkat**, IIT Hyderabad
52. **Shruto Kalyan Dey**, IISER Pune
53. **Saraswata Sensarma**
54. **Amit Apte**, IISER Pune
55. **Dhruv Shah**, Massachusetts Institute of Technology, USA
56. **Sandeep Saha**, IIT Kharagpur
57. **Kausik Ghosh**, King's College London, UK
58. **Uma Mahadevan**, Additional Chief Secretary and Development Commissioner, Government of Karnataka
59. **Subhodeep Chanda**
60. **Vijay Balasubramanian**, University of Pennsylvania, USA
61. **Trishen Gunaratnam**, TIFR, Mumbai
62. **Venkata Koppula**, IIT Delhi
63. **Shashwat Agrawal**, IIT Delhi
64. **Ashrujit Ghoshal**, IIT Madras, Chennai
65. **Ipsita Datta**, ETH Zurich, Switzerland
66. **R. Shankar**, Institute of Mathematical Sciences, Chennai
67. **Archak Purkayastha**, IIT Hyderabad
68. **Rajit Sen**
69. **Shubhayu Basak**, IIT Kharagpur
70. **Chetan Vuppulury**, Sapienza Università di Roma, Italy

71. **Kandaswamy Subramanian**, IUCAA Pune&Ashoka University, Sonapat
72. **Prahladh Harsha**, TIFR, Mumbai
73. **Anuraag Reddy**
74. **Bhanu Kiran S**, Chennai Mathematical Institute
75. **H.S. Mani**, Chennai Mathematical Institute
76. **Ipsita Mandal**, Shiv Nadar Institution of Eminence, Noida
77. **Urna Basu**, Saha Institute of Nuclear Physics, Kolkata
78. **Anandakrishnan H**, Mahatma Gandhi University, Kerala
79. **Shuban Ramesh Gupta**, IISER Pune
80. **Shoy Ouseph**, New York University Abu Dhabi, UAE

#### e. NEWS ON GRANTS, AWARDS AND FELLOWSHIPS



PALLAVI BHAT, along with seven international collaborators, received a **Simons Foundation grant for a Targeted Simons Research Group on Cosmic Magnetism**.



DEEPAK DHAR was awarded the prestigious 2026 **Dirac Medal** of the International Centre for Theoretical Physics (ICTP), recognising his seminal contributions to statistical mechanics and complex systems.



RAMA GOVINDARAJAN and T. N. VENKATARAMANA received the 2026 **INSA Distinguished Lecture Awards in the Engineering & Technology and Mathematical Sciences sections**.



AAVISHKAR PATEL and SARTHAK CHANDRA, were awarded the **inaugural Murty Science Fellowship**. They are among four early-career researchers across the sciences selected as part of the first cohort of Murty Science Fellows



AAVISHKAR PATEL was selected for the ANRF, **PM Early Career Research Grant**. The grant supports outstanding early-career researchers in establishing independent research programmes at Indian institutions.



PRAYUSH KUMAR was awarded the **APJ Abdul Kalam HPC & AI Award** in the category of Young Researcher R&D in HPC Applications (including AI).



ICTS Visiting Professor B. SURY was named a **Senior Scientist of the National Academy of Sciences, India (NASI)**.



ICTS graduate student CHANDRANATHAN ANANDAVIJAYAN has been selected for the prestigious **Nordita Visiting PhD Fellowship**.



ICTS graduate student BIKRAM PAIN was awarded the prestigious **Fulbright-Nehru Doctoral Research Fellowship** by the United States-India Educational Foundation (USIEF).



ICTS graduate students, ANWESHA DEY and MRINAL JYOTI POWDEL, were each awarded the **Best Poster Award** at the recently concluded **10th International Soft Matter Conference (ISMC) 2026**.

## II ICTS PEOPLE

### Ila FACULTY

1. The following scientists joined ICTS as Faculty Associates:
  - a) **Eric G. Blackman** (University of Rochester, NY, USA; Theoretical Astrophysics, Plasma Physics)
  - b) **Terrence George** (TIFR-CAM, Bengaluru; Mathematical Physics, Combinatorics, Geometry and Probability)
  - c) **Vikram Giri** (University of Zurich, Switzerland; Mathematics)
  - d) **Eliu Huerta** (Argonne National Lab & University of Chicago, USA; Astronomy and Astrophysics)
  - e) **Badri Krishnan** (Radboud Universiteit, Netherlands; Gravitational Wave Astronomy, Mathematical Theory of Black holes, Numerical Relativity)

### I Ib STUDENTS

#### GRADUATE PROGRAM

1. The Summer 2026 semester commenced on 1 May 2026. During May-July 2026, the following graduate students worked on these projects:

| Student Name         | Faculty Guide        | Project Title                                                                           |
|----------------------|----------------------|-----------------------------------------------------------------------------------------|
| Naman Kapoor         | Abhishek Dhar        | Investigating Hydrodynamics from Microscopic Dynamics                                   |
| Vibhu Pandya         | Schitadhi Roy        | Projected Ensemble of the Toric Code and Long-Ranged Entanglement                       |
| Soumya Dhawan        | P. Ajith             | Implementation of the FIONA algorithm for evaluation of the Fresnel Integral            |
| Swadesh Bhandari     | Aavishkar Patel      | Study of YSYK Model with MFL(NFL) Ground State                                          |
| Rajeev Ranjan Mishra | Gautam Mandal        | Black hole entropy, semiclassical state counts and gravity as an ensemble               |
| Rajnish Kumar Jha    | Rukmini Dey          | Geometric and Deformation Quantization                                                  |
| Sri Krithika         | Suvrat Raju          | Cosmological Wavefunction Coefficient for Massive Scalars                               |
| Tannu                | Sarthak Chandra      | Hebbian Plasticity and the Robustness of Chimera States in Adaptive Oscillator Networks |
| Pareekshit Sinwar    | Prayush Kumar        | Physics-Informed Neural Networks for Post-Newtonian Gravitational Waveforms             |
| Susanta Mal          | Subhro Bhattacharjee | Quantum Dynamics of a Particle on a Ring in a Stationary Random Potential               |

|                        |                   |                                                                                                                                                          |
|------------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Anoop T                | Shaon Chakraborty | Desynchronization of Circadian Oscillators: Quantifying the Loss of Phase Synchrony in Clock Gene Expression                                             |
| Anjana P               | Archishman Raju   | Emergence of Low Dimensional Organization and a Duality Between Environmental and Genetic Perturbations in an Optimized Environment to Phenotype Mapping |
| Kanak Sorari           | Sthitadhi Roy     | Dynamical Restoration of Symmetry                                                                                                                        |
| Ashutosh Prajapati     | Mukund Thattai    | Topological Mapping of the Landscape in Discrete Modern Hopfield Networks                                                                                |
| Ashif Sheikh           | Anupam Kundu      | Multiple returns for Hadamard walk                                                                                                                       |
| Ezhilmathi             | Brato Chakrabarti | Effects of environment on Active Suspension                                                                                                              |
| Shreyash Bhattacharjee | Akshit Goyal      | Optimal Antigen presentation protocol in the Immune system.                                                                                              |

- An orientation session for new students was held on 3 August 2026. As part of the orientation week held between 3-7 August 2026, various research groups offered an open hour, where some of the faculty/postdocs had informal chats with the new students.
- The August 2026 semester began on 3 August 2026. This semester, ICTS is offering 14 courses (including elective, reading and core courses). Please refer to the website for more details: <https://courses.icts.res.in/course/index.php?categoryid=29>. Students from other institutions can enroll for ICTS courses. Apart from the ICTS courses, students have also registered for courses from IISc, TIFR Mumbai, CAM-TIFR, NCBS.
- The following students registered for their PhD via Datanet 2.0:  
**2023 Integrated PhD batch:** Nitesh Kumar Patro, Diksha Arora, Akash Sarkar, Ankan Man, Arnab Paul, Mohammad Saif Khan, Shubhadeep Chakraborty, Sumukha Srinivasa Adiga, Tirthankar Mondal  
**2024 PhD batch:** Arup Datta, Elizabeth Sara Roy, Sangeetha S, Abhinav Dhawan, Anjali Bhatte, Saikat Bera, Saikat Ghosh, Vamshi Krishna Talala
- The following students submitted their synopsis during May-August 2026:

| Student Name           | Batch | Research Advisor | Date of submission |
|------------------------|-------|------------------|--------------------|
| Ashik H                | 2021  | Suvrat Raju      | 5 May 2026         |
| Vishal Neeraje         | 2021  | Vishal Vasan     | 14 May 2026        |
| Alan George Sherry     | 2020  | Abhishek Dhar    | 18 May 2026        |
| Ankur Narendra Barsode | 2021  | P. Ajith         | 26 May 2026        |
| Tamoghna Ray           | 2020  | Manas Kulkarni   | 22 June 2026       |

|                        |      |                   |              |
|------------------------|------|-------------------|--------------|
| Rajarshi Chattopadhyay | 2020 | Rama Govindarajan | 16 July 2026 |
|------------------------|------|-------------------|--------------|

6. The following students submitted their thesis during May-August 2026:

| Student Name           | Batch | Research Advisor         | Date of submission |
|------------------------|-------|--------------------------|--------------------|
| Jigwasa Watwani        | 2020  | Vijaykumar Krishnamurthy | 18 May 2026        |
| Ashik H                | 2021  | Suvrat Raju              | 08 June 2026       |
| Vishal Neeraje         | 2021  | Vishal Vasan             | 11 June 2026       |
| Alan George Sherry     | 2020  | Abhishek Dhar            | 17 June 2026       |
| Tamoghna Ray           | 2020  | Manas Kulkarni           | 10 August 2026     |
| Ankur Narendra Barsode | 2021  | P Ajith                  | 12 August 2026     |

7. The following students successfully defended their thesis during May-August 2026:

| Student Name     | Batch | Research Advisor         | Date of submission |
|------------------|-------|--------------------------|--------------------|
| Ritwik Mukherjee | 2021  | Samriddhi Sankar Ray     | 14 July 2026       |
| Jigyasa Watwani  | 2020  | Vijaykumar Krishnamurthy | 24 July 2026       |

8. Subsequent affiliation of students after graduation during May-August 2026:

- Ritwik Mukherjee** - Postdoctoral researcher in Universitat de Barcelona, Spain
- Jigyasa Watwani** - Postdoctoral researcher in Centre de Physique Théorique, Aix-Marseille University, France

9. **Graduate Studies Admissions 2026:**

- Physics Program:** The offline interview for the Physics Program 2026 via JEST/ GATE/ CSIR-UGC-NET (Physical Sciences - JRF eligible) stream was conducted on 20, 21 and 22 May 2026. Out of eight offers (4 PhD and 4 IPhD) made, seven (4 PhD and 3 IPhD) joined the program.
- Mathematics Program:** The online interview for the Mathematics Program 2026 via TIFR GS/ CSIR-UGC-NET (Mathematical Sciences - JRF eligible) stream was conducted on 4 May 2026. One offer was made and the candidate joined the program.
- Applied and Computational Mathematics (ACM):** The offline interview for the ACM Program 2026 via TIFR GS/ GATE/ JEST/ CSIR-UGC-NET (Mathematical Sciences, Earth Sciences, Physical Sciences) was conducted on 25 and 26 May 2026. One offer was made.

- d) **Physics of Life (PoL) Program:** The offline interview for the Physics of Life (PoL) Program 2026 via JEST/ GATE/ CSIR-UGC-NET (Physical Sciences and Mathematical Sciences - JRF eligible) was conducted on 19 May 2026. Four offers were made and 2 candidates joined the program.
- e) 17 students joined the 2026 graduate studies programs in August 2026. 13 in Physics, 1 in Mathematics and 3 in Physics of Life. These include candidates who were offered admission in March 2026 through GS 2026.

## POSTDOCTORAL PROGRAM

1. Postdoctoral applications for the summer cycle 2027 are currently being screened: <https://www.icts.res.in/academic/postdoctoral-fellowships>
2. **CALIBRE AI in Biology Postdoctoral Fellowship Program:** Five offers were made, three accepted the offer. Two joined (Shreyank Goel, Maanasa Natarajan), one (Akshay S H) will join in September 2026.
3. Subsequent affiliations of postdocs who finished their tenure at ICTS-TIFR between May-August 2026
  - a) **Anurag Kaushal** - Postdoctoral fellow at The University of Science and Technology of China (USTC)

## LONG-TERM VISITING STUDENTS PROGRAM 2026

Applications were invited for the ICTS Long-Term Visiting Students Program 2026. 20 offers were made and 9 candidates accepted the offer.

The following seven students joined the program in August 2026:

| Student Name                 | Affiliation    | Faculty mentor  |
|------------------------------|----------------|-----------------|
| Adarsh Tiwari                | IIT Kharagpur  | Prayush Kumar   |
| Alfi Sajeev                  | IISER Pune     | Sarthak Chandra |
| Cheranya Singh               | IISER Pune     | Manas Kulkarni  |
| Sashank Chandra Reddy Singam | IISc Bangalore | Sthitadhi Roy   |
| Semmugilan V                 | IIT Palakkad   | Jim Thomas      |
| Shuban Ramesh Gupta          | IISER, Pune    | Akshith Goyal   |
| Srujana Kaluve               | IISER Mohali   | Sarthak Chandra |

The following two students will join the program in January 2027:

| Student Name | Affiliation            | Faculty mentor |
|--------------|------------------------|----------------|
| Neelima P    | IISER, Pune            | Manas Kulkarni |
| Uditi Nag    | Cardiff University, UK | Prayush Kumar  |

### S.N. BHATT MEMORIAL FELLOWSHIP PROGRAM 2026

The ICTS-S.N. Bhatt Memorial Excellence Fellowship Program 2026 was conducted between 18 May 2026 to 10 July 2026. The following eight students attended the program:

| Student Name           | Affiliation     | Faculty mentor                    | Project title                                                                                          |
|------------------------|-----------------|-----------------------------------|--------------------------------------------------------------------------------------------------------|
| Ahan Chakraborty       | ISI, Kolkata    | Anirban Basak & Riddhipratim Basu | Random Cluster Model on Regular Graphs                                                                 |
| Archisman Bhattacharya | ISI, Kolkata    | Trishen Gunaratnam                | Lower Bounds on Sphere Packing Density in High Dimensions                                              |
| Samadrita Bhattacharya | ISI, Bengaluru  | Siva Athreya                      | Local Weak Convergence of Random Graphs                                                                |
| Samadrita Sarkar       | ISI, Kolkata    | Anirban Basak & Riddhipratim Basu | Exploring Mixing time and the Cut-off Phenomenon for Card Shufflings and Random Walks on Finite Groups |
| Saptarshi Mandal       | IIT Kanpur      | Trishen Gunaratnam                | Sticky Kakeya Conjecture                                                                               |
| Shounak Kar            | ISI, Kolkata    | Anirban Basak & Riddhipratim Basu | Continuity of Phase Transition for Ising Model on $\mathbb{Z}^d$                                       |
| Shreya Pithva          | ISI, Bengaluru  | Abhishek Dhar                     | Simulating QND Photon Counting in a Cavity                                                             |
| Srujan Patil           | IISc, Bengaluru | Anirban Basak & Riddhipratim Basu | Critical Exponents for Planar Random Cluster Model with $q = 4$                                        |

### ICTS SUMMER COURSE

The [ICTS Summer Course 2026](#) titled Dynamical Systems in Neuroscience was conducted by ICTS faculty member, SARTHAK CHANDRA from 18 May 2026 to 11 June 2026 (twice a week). The summer course was offered in a hybrid format, with sessions conducted offline on campus, online via Zoom, and livestreamed on YouTube. Certificates were issued to participants who successfully completed the course.

## OUTREACH

### KAAPI WITH KURIOSITY

#### Beautiful Minds: Consciousness and a Sense of Self in Bonnet Macaques

Anindya 'Rana' Sinha (National Institute of Advanced Studies, Bengaluru) | 30 August 2026

#### Circles, Constants, and Curiosity: The Story of $\pi$ and Beyond

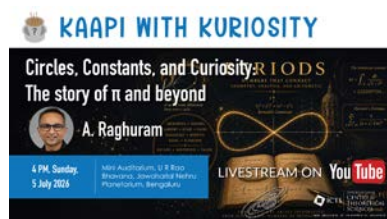
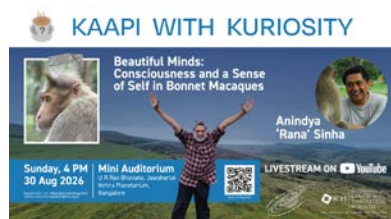
A. Raghuram (Fordham University, New York, USA) | 5 July 2026

#### Spaces of Shapes

Subhojoy Gupta (Indian Institute of Science, Bengaluru) | 28 June 2026

#### Infinite Journeys on Finite Wings: A Dragonfly's Epic Marathon across the Indian Ocean

Sandeep Saha (Indian Institute of Technology Kharagpur) | 31 May 2026



### MATHS CIRCLE INDIA

ICTS conducted seven online Maths Circle India sessions during May-August 2026.

#### Session 102

Conducted by: Sayed Sahil, Pranav Narayan Sharma, Anilattmaja Aryasomayajula and Shilpak Banerjee | Interactive session: 14 August 2026

#### Session 101

Conducted by: Sayed Sahil, Pranav Narayan Sharma, Anilattmaja Aryasomayajula, Shilpak Banerjee | Interactive session: 31 July 2026

#### Session 99

Conducted by: Hrishik Gupta, Rohun Easwar, Jayaprathap N, Amit Kuber | Interactive session: 3 July 2026

**Session 98**

Conducted by: Annoy Sengupta, Hrishik Gupta, Rohun Easwar, Jayaprathap N., Amit Kuber | Interactive session: 19 June 2026

**Session 97**

Conducted by: Annoy Sengupta, Hrishik Gupta, Rohun Easwar, Amit Kuber | Interactive session: 5 June 2026

**Session 96**

Conducted by: Annoy Sengupta, Hrishik Gupta, Rohun Easwar, Amit Kuber | Interactive session: 21 May 2026

**Session 95**

Conducted by: Abhishek Bhattacharjee | Interactive session: 1 May 2026

**ICTS-RRI MATHS CIRCLE**

During May-August 2026, eight maths circle sessions were held at the Raman Research Institute, Bengaluru.

**Session 67**

Conducted by: Pranav Pandit | Interactive session: 22 August 2026

**Session 66**

Conducted by: Joseph Samuel and Supurna Sinha | Interactive session: 08 August 2026

**Session 65**

Conducted by: Pranav Pandit | Interactive session: 25 July 2026

**Session 64**

Conducted by: Pranav Pandit | Interactive session: 11 July 2026

**Session 63**

Conducted by: Deepak Dhar | Interactive session: 27 June 2026

**Session 62**

Conducted by: Deepak Dhar | Interactive session: 13 June 2026

**Session 61**

Conducted by: Abhishek Dhar | Interactive session: 23 May 2026

**Session 60**

Conducted by: Abhishek Dhar | Interactive session: 9 May 2026

**PRISM****PriSM 11: Making Sense of Wave Phenomena: from the Mechanical to the Abstract**

Kaushik Basu (University of California, Berkeley, USA) | 19 June 2026

**BANGALORE MATHEMATICS TEACHERS CIRCLE (BMTc)**

The Bangalore Mathematics Teachers' Circle (BMTc) fosters a problem-solving, inquiry-driven culture among school teachers through collaborative engagement with rich mathematical problems. The BMTc is conducted in collaboration with Maths Circle India, Azim Premji University, the Mathematics Teachers' Association (India), and St. Joseph's University, with inputs from similar initiatives at IIT Palakkad and HBCSE, Mumbai.

**BMTc 4**

Conducted by: Shailesh Shirali | Interactive session: 1 August 2026 | St. Joseph's University

**BMTc 3**

Conducted by: Mohan R, Disha Kuzhively, Kanchana Suryakumar, Vignesh Nadarajan | Interactive session: 30 May 2026 | St Joseph's University

**MATH CIRCLE SPECIAL EVENTS****Learning Machines**

Conducted by: Piyush Srivastava | Interactive session: 17 July 2026

**OTHER EVENTS****ಏನನ್ನು ತಿನ್ನಬೇಕು? ಏನನ್ನು ತಿನ್ನಬಾರದು?**

ನಾ. ಸೋಮೇಶ್ವರ (ಬೆಂಗಳೂರು) | 28 August 2026

**ವೈಜ್ಞಾನಿಕ ಮನೋಧರ್ಮ: ಏನು? ಏಕೆ?**

ಕೊಳ್ಳೇಗಾಲ ಶರ್ಮ (ಮೈಸೂರು) | 3 July 2026

**Exposure Visit: Lakshya Science Enrichment Program 2026**

Kanak Sorari (ICTS-TIFR, Bengaluru), Aiswarya N S (ICTS-TIFR, Bengaluru), Siva Athreya (ICTS-TIFR, Bengaluru), Sai Prakash Poldas (ICTS-TIFR, Bengaluru) and Elizabeth Sara Roy (ICTS-TIFR, Bengaluru) | 6 May 2026

## ANNEXURE - A

The following are the details of seminars and colloquia during the period May-August 2026:

### Leveraging Twin Information for Inference of Gene Regulatory Networks

Keerthana M Arun (University of Pennsylvania, USA)

20 August 2026

### A Dynamical Test for Cooling-Induced Entrainment in a Runaway

Supermassive Black Hole Tail | Ish Kaul (University of California, Santa

Barbara, USA) | 20 August 2026

### Supergeometric Stochastic Systems and SIC POVMs | Subhobrata Chatterjee

(Department of Mathematics, UC Davis, USA) | 24 August 2026

### After the Fever Breaks: Chronic Conditions with an Infectious Disease

Etiology | Brian Patrick Wahl (Yale School of Public Health, USA) | 25 August

2026

### Challenges and Opportunities for Infectious Disease Surveillance in India |

Rizwan S.A. (ICMR - National Institute of Epidemiology) | 25 August 2026

### Fractionalized ("orthogonal") Metals in Anyon Fluids | Senthil Todadri, (MIT,

USA) | 14 August 2026

### Probing Primordial Dynamics using Induced Gravitational Waves | H. V.

Ragavendra ((University of Padova, Italy) | 6 August 2026

### LIGO-Virgo-KAGRA Searches for Continuous Gravitational Waves from

Scorpius X-1 | John T. Whelan (Rochester Institute of Technology and

University of Warwick) | 5 August 2026

### Stability and Evolution of Interior Magnetic Field in Magnetars | Raj Kishor

Joshi (CAMK, Warsaw, Poland) | 31 July 2026

### Cryptographic Thinking for Trustworthy AI | Vinod Vaikuntanathan

(Massachusetts Institute of Technology, USA) | 30 July 2026

### Black Holes in AdS: Singularities and Thermodynamics | Kaustubh Singhi

(ICTS-TIFR, Bengaluru) | 28 July 2026

### Active Patterns, Geometry, and Growth during Morphogenesis | Jigyasa

Watwani (ICTS-TIFR, Bengaluru) | 24 July 2026

### Superconductivity from Quantum Spin Liquids | Subir Sachdev (Harvard

University, USA) | 22 July 2026

### How to Answer Ecological Questions with Messy Data? | Maria Kuruvilla

(University of Victoria, Canada) | 21 July 2026

New Dynamics in Microscopic and Macroscopic Geophysical Flows | Rajarshi Chattopadhyay (ICTS-TIFR, Bengaluru) | 16 July 2026

Hydrodynamic Equations Across Scales: Turbulence, Chaos, and Collective Dynamics | Ritwik Mukherjee (ICTS-TIFR, Bengaluru) | 14 July 2026

Optimizing the Search for Strongly Lensed Gravitational Waves using Bounding Volume Hierarchies | Anandakrishnan H (Mahatma Gandhi University, Kerala) | 10 July 2026

Study of Phase Transition in Dynamical Systems of Neutron Stars | Shamim Haque (IISER Bhopal) | 9 July 2026

Evaluating LLMs and Agents for AI-Driven Scientific Research | Subhashini Venugopalan (Google Research) | 9 July 2026

Quantum Chaos and the Complexity of Time Evolution | Vijay Balasubramanian (University of Pennsylvania, USA) | 3 July 2026

New Trends in the Cahn-Hilliard-Navier-Stokes description of Binary-Fluid Mixtures: An Overview | Rahul Pandit (Indian Institute of Science, Bengaluru) | 3 July 2026

Dynamical Stability and Long-Term Evolution of Planetary Systems | Hareesh Gautham Bhaskar (Indiana University, Bloomington, USA) | 2 July 2026

Advances in Gravitational Waveform Modeling: Eccentricity, Precession, and Finite-Size Effects | Samanwaya Mukherjee (ICTS-TIFR, Bengaluru) | 25 June 2026

Can Quantum Statistics Power a Heat Engine? | Sourin Das (IISER Kolkata) | 25 June 2026

Spin, Statistics and the Geometric Phase | Joseph Samuel (ICTS-TIFR, Bengaluru) | 24 June 2026

Chaos, Dynamics, and Transport in Isolated and Open Systems | Tamoghna Ray (ICTS-TIFR, Bengaluru) | 22 June 2026

Long-Range Interactions and the Origin of Black Hole Entropy | Nicolo Defenu (ETH Zurich, Switzerland) | 19 June 2026

Non-Supersymmetric Fixed Points and the BMB Phenomenon in  $d=3$  Gauged Sextic Scalar Models | Shiroman Prakash (Dayalbagh Educational Institute, Agra) | 17 June 2026

Position-Momenta Uncertainties in Classical Systems | Pradeep Kumar Mohanty (IISER Kolkata) | 17 June 2026

Gapped Parent Hamiltonians for the Strongly Deformed Toric Code | Manoj Nandagopal (Caltech, USA) | 15 June 2026

Out of Time Ordered Transport | Ruchira Mishra (The University of Chicago, USA) | 11 June 2026

Neural Circuits and Systems for Planning and Navigation | Vijay Balasubramanian (University of Pennsylvania, USA) | 9 June 2026

Understanding Erosion, Deposition, and Particle Transport Dynamics in Turbulent Fluid Flow | Durbar Roy (ICTS-TIFR, Bengaluru) | 5 June 2026

Spin-Statistics from Ribbon Histories | Joseph Samuel (ICTS-TIFR, Bengaluru) | 4 June 2026

Conformal Bootstrap in the Age of AI | Kausik Ghosh (King's College London, UK) | 29 May 2026

Aerodynamics of Endurance: From Transoceanic Migratory Dragonflies to Micro-Air Vehicles | Sandeep Saha (IIT Kharagpur) | 29 May 2026

A Glimpse at Conformal Invariance of Planar Lattice Models | Trishen Gunaratnam (TIFR, Mumbai) | 27 May 2026

Detecting Strong Gravitational Lensing of Gravitational Waves | Ankur Barsode (ICTS-TIFR, Bengaluru) | 26 May 2026

On the Asymptotic Causal Structure in Gravitational EFTs | Alessandro Longo (Astroparticule et Cosmologie, Université Paris Cité, France) | 25 May 2026

Quasiparticle Dynamics and Density Correlations in Hard Rod Gas | Indranil Mukherjee (ICTS-TIFR, Bengaluru) | 25 May 2026

Building Invariants in Geometry | Ipsita Datta (ETH Zurich, Switzerland) | 19 May 2026

Emergent Statistics in Measurement-induced Quantum Dynamics | Alan George Sherry (ICTS-TIFR, Bengaluru) | 18 May 2026

Biocomplexity and AI | Madhav Marathe (University of Virginia, USA) | 14 May 2026

Parameter Identification using Asymptotic Observers | Vishal Neeraje (ICTS-TIFR, Bengaluru) | 14 May 2026

Bondi-Hoyle-Lyttleton Accretion onto Ultra Dense Dark Matter Halos and Direct Collapse Black Holes | Kandaswamy Subramanian (IUCAA, Pune and Ashoka University, Sonapat) | 14 May 2026

Quantum Thermodynamics of Small Systems | H.S. Mani (Chennai Mathematical Institute) | 12 May 2026

Black holes: Endgame | Shoy Ouseph (New York University Abu Dhabi, UAE) | 11 May 2026

Continuum Limits of Qubit-Regularized Gauge Theories | Shailesh Chandrasekharan (Duke University, USA) | 7 May 2026

Symplectic Structure of Open String Field Theory | Vinicius Bernardes (Institute of Physics, Prague) | 6 May 2026

Holography, Cosmology and Tachyons | Ashik H (ICTS-TIFR, Bengaluru) 5 May 2026

#### COLLOQUIA

Integer Lattices and Cryptography: A Match Made in Heaven | Vinod Vaikuntanathan (Massachusetts Institute of Technology, USA) | 28 July 2026

Rural Public Libraries as Third Spaces | Uma Mahadevan (Additional Chief Secretary and Development Commissioner, Government of Karnataka) | 26 May 2026

#### ACADEMIC LECTURE SERIES

Quantum Dynamics in the Pre-fault Tolerant Era | Jedediah Pixley (Rutgers University, USA) | 3 June 2026

## ANNEXURE - B

### PAPERS PUBLISHED – 144

#### In Journals - 71

1. *Turbulence-induced Fluctuating Interfaces in Heterogeneously-active Suspensions*, Siddhartha Mukherjee, **Kunal Kumar**, **Samriddhi Sankar Ray**. PNAS Nexus, 5 (5) pgag125 (2026)
2. *Fluctuating Interfaces in Barotropic Beta-plane Turbulence*, **Sandip Sahoo**, **Samriddhi Sankar Ray**. Geophysical Research Letters 53 (9), e2025GL119051 (2026)
3. *Hydrodynamics of Dense Active Fluids: Turbulence-Like States and the Role of Advected Activity*, **Sandip Sahoo**, Siddhartha Mukherjee, **Samriddhi Sankar Ray**. J. Stat. Mech.: Theory and Expt. 2026 (05) 054001 (2026). Special Issue articles
4. *Strings from Feynman Diagrams*, **Rajesh Gopakumar**, **Rishabh Kaushik**, Shota Komatsu, Edward A. Mazenc, Debmalya Sarkar. J. High Energy Physics 2026 (05) 54 (2026)
5. *Strong Lensing Cosmography using Binary-black-hole Mergers: Prospects for the Near Future*, **Koustav N. Maity**, **Souvik Jana**, **Tejaswi Venumadhav**, **Ankur Barsode**, **Parameswaran Ajith**. Phys. Rev. D 113 (10), 103522 (2026)
6. *Biased Parameter Inference of Eccentric, Spin-precessing Binary Black Holes*, Divyajyoti, Isobel M. Romero-Shaw, **Vaishak Prasad**, **Kaushik Paul**, Chandra Kant Mishra, **Prayush Kumar**, **Akash Maurya**, Michael Boyle, Lawrence E. Kidder, Harald P. Pfeiffer, Mark A. Scheel. Phys. Rev. D 113 (10), 103022 (2026)
7. *Multiple Dirac Spin-orbital Liquids in SU (4) Heisenberg Antiferromagnets on the Honeycomb Lattice*, Manoj Gupta, Arijit Haldar, **Subhro Bhattacharjee**, Tanusri Saha-Dasgupta. Phys. Rev. B (Letters) 113 (20), L201110 (2026)
8. *Tidal Heating Effects in Binary Black Hole Mergers*, **Samanwaya Mukherjee**, Sayak Datta, Sukanta Bose, Khun Sang Phukon. Phys. Rev. D 113 (10), 104011 (2026)
9. *Gauge Invariant Hamiltonian Evolution Across the Black Hole Horizon in Asymptotically AdS Spacetimes*, **Anurag Kaushal**, **Naveen S. Prabhakar**, **Spenta R. Wadia**. Phys. Rev. D 113 (10), 106019 (2026)
10. *2+1 Dimensional Gravity in AdS Spacetimes with Spatial Wormhole Slices: Reduced Phase Space Dynamics and the BTZ Black Hole*, **Anurag Kaushal**, **Naveen S. Prabhakar**, **Spenta R. Wadia**. Phys. Rev. D 113 (10), 106018 (2026)
11. *Critical Spin Fluctuations Across the Superconducting Dome in  $La_{2-x}Sr_xCuO_4$* , Jacopo Radaelli, Oliver J. Lipscombe, Mengze Zhu, J. Ross Stewart, **Aavishkar A. Patel**, Subir Sachdev, Stephen M. Hayden. Nature Communications, 17, 4564 (2026)
12. *Microscopic and Hydrodynamic Correlation in 1d Hard Rod Gas*, **Indranil Mukherjee**, **Seema Chahal**, **Anupam Kundu**. J. in Statistical Mechanics: Theor. & Expt. 2026 (05) 053203 (2026)
13. *Deep Thermalization for Mixed States*, **Alan Sherry**, **Sthitadhi Roy**. Phys. Rev. B 113 (17), 174309 (2026)

14. *More Uses for Thermal Models*. Natasha Sharma, Lokesh Kumar, **Sourendu Gupta**. The European Phys. J. C 86, 556 (2026)
15. *Conductance Fluctuations in Random Resistor Networks with Hyperuniform Disorder*, **Bikram Pal**. J. Stat. Mech. Theo. and Expt. 2026 (5) 053205 (2026)
16. *Intermittent Fluctuations Determine the Nature of Chaos in Turbulence*, **Aikya Banerjee, Ritwik Mukherjee**, Sugan Durai Murugan, **Subhro Bhattacharjee, Samriddhi Sankar Ray**. Phys. Rev. Lett. 136 (21), 214001 (2026). *This publication was selected as Editors' Suggestion.*
17. *An Upper Critical Dimension for Dynamo Action: A d-dimensional Closure Model Study*, **Sugan Durai Murugan**, Giorgio Krstulovic, Dario Vincenzi, **Samriddhi Sankar Ray**. J. of Physics A: Mathematical and Theoretical, 59 (21) 215702 (2026)
18. *Real-Space Stochastic GW Calculations Benchmark on GW20*, Ishita Shitut, Weiwei Gao, James R. Chelikowsky, **H. R. Krishnamurthy**, Manish Jain, J. Chem. Theory Comput. 22 (11), 5663–5673 (2026)
19. *On the Almost Palindromic Width of Certain Free Constructions of Groups*, Krishnendu Gongopadhyay, **Shrinit Singh**. Communications in Algebra (2026)
20. *Tidal Heating Effects in Binary Black Hole Mergers*, **Samanwaya Mukherjee**, Sayak Datta, Sukanta Bose, Khun Sang Phukon. Phys. Rev. D 113 (10), 104011 (2026)
21. *Adaptation to Extreme Stress Under the Growth-survival Fitness Trade-off*, Nandita Chaturvedi, Charuhansini Tvishamayi, **Shashi Thutupalli**. Phys. Rev. E 113 (05), 054403 (2026)
22. *Fitness Advantage of Sequential Metabolic Strategies Emerges from Community Interactions in Strongly Fluctuating Environments*, Zihan Wang, Yu Fu, **Akshit Goyal**, Sergei Maslov. PLoS Comput Biol 22 (5) e1014277 (2026)
23. *Characterization of Erdős Matrices by their Zero Entries*, **Priyanka Karmakar**, Hariram Krishna, Souvik Pal, G. Krishna Teja. Linear Algebra and its Applications 739, 154-169 (2026)
24. *New Reduced Mathematical Models Capture Features of Wave Turbulence*, Dipti Ranjan Parida and **Jim Thomas**. J. of Fluid Mechanics, 1036, 10, A46 (2026)
25. *Krylov-space Anatomy and Spread Complexity of a Disordered Quantum Spin Chain*, **Bikram Pain**, David E. Logan, **Sthitadhi Roy**. Phys. Rev. B 113 (21), 214205 (2026)
26. *Uncertainty Growth in Stably Stratified Turbulence*, **Mrinal Jyoti Powdel, Samriddhi Sankar Ray**. Phys. Rev. Fluids 11 (06), 064615 (2026). *This publication was selected as Editors' Suggestion.*
27. *Early Warning From Eccentric Compact Binaries: Template Initialization And Sub-dominant Mode Effects*, **Priyanka Sinha, R. Prasad, Mukesh Kumar Singh, Prayush Kumar, Akash Maurya**, Kaushik Paul. Phys Rev D 113 (12), 123060 (2026)
28. *Loops Outside a Black Hole*, **R. Loganayagam, Godwin Martin, Shivam K. Sharma**. J. High Energy Physics 2026 (06) 82 (2026)
29. *Transition to Turbulence Induced by Near-inertial Wave–vortex Interactions*, Rajendra S. Rajpoot and **Jim Thomas**. J. of Fluid Mechanics, 1037, A33 (2026)

30. *Stochastic Dynamics of Quasiparticles in the Hard Rod Gas*, **Seema Chahal, Indranil Mukherjee, Abhishek Dhar**, Herbert Spohn, **Anupam Kundu**. *Scipost Phys.* 20 (6) 166 (2026)
31. *Giant Graviton Expansion from Eigenvalue Instantons*, Yiming Chen, **Raghu Mahajan**, Haifeng Tang. *J. High Energy Physics* 2026 (06) 147 (2026)
32. *Time Correlations in KPZ Models with Diffusive Initial Conditions*, **Riddhipratim Basu**, Xiao Shen. *Annals of Applied Probability* 36 (3) 2559–2593 (2026)
33. *Eccentric Binary Black Holes: A New Framework for Numerical Relativity Waveform Surrogates*, Peter James Nee, Adhrit Ravichandran, Scott E. Field, Tousif Islam, Harald P. Pfeiffer, Vijay Varma, Michael Boyle, Andrea Ceja, Noora Ghadiri, Lawrence E. Kidder, **Prayush Kumar, Akash Maurya**, Marlo Morales, Antoni Ramos-Buades, Abhishek Ravishankar, Katie Rink, Hannes R. Rüter, Mark A. Scheel, Md Arif Shaikh, Daniel Tellez. *Phys. Rev. Res.* 8 (02) 023362 (2026)
34. *Generalised 4d Partition Functions and Modular Differential Equations*, **A. Ramesh Chandra**, Sunil Mukhi, Palash Singh. *J. High Energy Physics* 2026 (06) 211 (2026)
35. *Experimental Evidence for Strong Emergent Correlations between Particles in a Switching Trap*, Marco Biroli, Sergio Ciliberto, **Manas Kulkarni**, Satya N. Majumdar, Artyom Petrosyan, Gregory Schehr. *Phys. Rev. Lett.* 137 (03), 037102 (2026)
36. *An Effective Field Theory for Thermal QCD with 2+1 Flavours*, **Sourendu Gupta**, Pritam Sen, Rishi Sharma. *Phys. Rev. D* 114 (01), 014041 (2026)
37. *Geodesic Trees and Exceptional Directions in FPP on Hyperbolic Groups*, **Riddhipratim Basu**, Mahan Mj. *Advances in Mathematics* 498, 111030 (2026)
38. *Inertial Oscillations Disintegrating Coherent Vortices*, **Jim Thomas, Amjad Hasan**, Rajendra S. Rajpoot. *J. of Physical Oceanography* 56 (7) 1605–1626 (2026)
39. *Dissipative spectral form factor for elliptic Ginibre unitary ensemble and applications*, Sunidhi Sen, Santosh Kumar, Ayana Sarkar, **Manas Kulkarni**. *Phys. Rev. B* 114 (01), 014203 (2026)
40. *2D or not 2D: a "holographic dictionary" for Lowest Landau Levels*, **Gautam Mandal**, Ajay Mohan, Rushikesh Suroshe. *J. High Energy Physics* 2026 (07) 32 (2026)
41. *Density-controlled Reversal of Collective Migration in Bacterial Aerotaxis*, Dipanjan Ghosh, **Brato Chakrabarti**, and Xiang Cheng. *Phys. Rev. Res.* 8 (03), 033059 (2026)
42. *Emergence of many-body chaos in the presence of quasiparticles*, **Sibaram Ruidas, Sthitadhi Roy, Subhro Bhattacharjee**, Roderich Moessner. *Phys. Rev. B* 114 (14), 014306 (2026). *This publication was selected as Editors' Suggestion.*
43. *Investigating Near-Surface Thermohaline Structure and Barrier Layer Temperature Evolution in the Northern Bay of Bengal Using Seaglider and Mooring Observations in 2015*, V. P. Thangaprakash, M. S. Girishkumar, J. Sreelekha, N. Sureshkumar, S. Shivaprasad, M. Ravichandran, **D. Sengupta**, J. T. Farrar, C. Lee, E. Pattabhi Rama Rao, S. S. V. S. Ramakrishna, C. V. Naidu. *J. of Geophysical Research: Oceans* 131 (7) e2025JC023682 (2026)

44. *Semidefinite Programming for Understanding Limitations of Lindblad Equations*, **Soumyadeep Sarma**, **Manas Kulkarni**, Archak Purkayastha, Devashish Tupkary. Phys. Rev. A 114 (01), 012423 (2026)
45. *Could the High-mass Black Holes from Gravitational-wave Observations be Explained by Lensing?* **Ritesh Harshe**, **R. Prasad**, **Parameswaran Ajith**. Astrophysical J. Lett., 1005 (2) L75 (2026)
46. *Circular Strings, Magnons, Plane Waves and Local Quenches in BTZ*, Justin R. David, **Rahul Metya**. J. High Energy Physics 2026 (07) 134 (2026)
47. *Chase Orbits, not Time: A Scalable Paradigm for Long-Duration Eccentric Gravitational-Wave Surrogates*, **Akash Maurya**, **Prayush Kumar**, Scott E. Field, Chandra Kant Mishra, Peter James Nee, Kaushik Paul, Harald P. Pfeiffer, Adhrit Ravichandran, Vijay Varma. Phys. Rev. Lett. 137 (04), 041401 (2026)
48. *The BEF Symplectic Form: A Lagrangian Perspective*, **Mohd Ali**, **Georg Stettinger**. J. High Energy Physics 2026 (07) 222 (2026)
49. *The Dynamics of Thermalisation in the Galerkin-truncated, Three-dimensional Euler Equation*, **C. Rajarshi**, **M. S. Khan**, P. Anand and **Samriddhi Sankar Ray**. Philosophical Transactions of the Royal Society A, 384 (2325) 20250024 (2026)
50. *The Significance of Two-way Coupling in Two-dimensional, Dusty Turbulence*, **Harshit Joshi**, **Samriddhi Sankar Ray**. Physical Review E 114 (01), 015106 (2026)
51. *Caustics of Finitely Dense Inertial Particles*, **Rajarshi Chattopadhyay**, **Rama Govindarajan**. Physical Review Fluids 11 (07), 074304 (2026)
52. *Progenitor of the Recoiling Super-massive Black Hole RBH-1 Identified using HST/JWST Imaging*, Tousif Islam, **Tejaswi Venumadhav**, Digvijay Wadekar. Phys. Rev. Lett. 137 (03), 031404 (2026)
53. *Viscosity Variation in Fluid Flows Across Scale*, Arjun Sharma, Ritabrata Thakur, **Sharath Jose**, **Rama Govindarajan**. Accepted in Rev. Mod. Phys. (2026). *This publication was an invited article in Review for Modern Physics.*
54. *Large Deviations of Geodesic Midpoint Fluctuations in Last-passage Percolation with General i.i.d. Weights*, Tom Alberts, **Riddhipratim Basu**, Sean Groathouse, Xiao Shen. Accepted in Proceedings of the American Mathematical Society (2026)
55. *Reversibility, Chaos, and Attractors in Periodically Sheared Elastic Filaments*, Francesco Bonacci, **Brato Chakrabarti**, Olivia du Roure, Anke Lindner, David Saintillan. Accepted in Phys. Rev. X (2026)
56. *Vacancy-induced Local Moments in Quantum Paramagnetic Phases: An SU(N) Designer Hamiltonian Study*, Md Zahid Ansari, **Souvik Kundu**, Kedar Damle. Accepted in Phys. Rev. B (2026)
57. *Robust Correlation-induced Localization Under Time-reversal Symmetry Breaking*, **Bikram Pain**, **Sthitadhi Roy**, Jens H. Bardarson, Ivan M. Khaymovich. Phys. Rev. Res. (Letter) 8 (03), L032037 (2026)
58. *The Physical Consequences of Sperm Gigantism*, Jasmin Imran Alsous, **Brato Chakrabarti**, Bryce Palmer, Michael J. Shelley. Nature Physics 22, 1306–1317 (2026)
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60. *Gravitational Waves from Strongly Magnetized Eccentric Neutron Star Binaries*, **R. Prasad, Anushka Doke, Prayush Kumar**. The Astrophysical J., 1007, (1) 20 (2026)
61. *Generating Pairwise Entanglement in Periodically Driven Quantum Spin Chains with Stochastic Resetting*, Sinchan Ghosh, **Manas Kulkarni**, K. Sengupta, Satya N. Majumdar. Accepted in Phys. Rev. B
62. *Geodesic Trees in Last Passage Percolation and Some Related Problems*, Márton Balázs, **Riddhipratim Basu**, Sudeshna Bhattacharjee. Ann. Inst. H. Poincaré Probab. Statist. 62 (3), 2157-2198 (2026)
63. *Synergistic Degradation of Fucoic Acids in the Ocean*, Andreas Sichert, Shaul Pollak, **Akshat Goyal**, Otto Cordero, Uwe Sauer. Accepted in Nature (2026) <https://doi.org/10.1038/s41586-026-10980-z>
64. *Revisiting Localization for BPS Black Hole Entropy*, **Ashoke Sen**. J. High Energy Physics 2026 (08) 174 (2026)
65. *Apparent Time Symmetry of Lagrangian Coherent Structures in Active Turbulence*, Suvarchalanjan Bellaganti, **Amal Manoharan**, Kirti Kashyap, Siddhartha Mukherjee. Europhys. Lett. 155 (06) 63001 (2026)  
Featured as a Focus Article in Focus Issue on Complex Flows and Complex Fluids
66. *Expanding the Population of Short Gamma-Ray Transients with a Coherent Fermi/GBM Search. A 13-year catalog of short GRBs*. Ariel Perera, Barak Zackay, **Tejaswi Venumadhav**. Monthly Notices of the Royal Astronomical Society, 551 (3) 3159-3202 (2026)
67. *Including Higher-order Modes in a Quadrupolar Eccentric Numerical Relativity Surrogate using Universal Eccentric Modulation Functions*, Tousif Islam, Adhrit Ravichandran, Peter James Nee, Scott E. Field, Vijay Varma, Harald P. Pfeiffer, Andrea Ceja, Noora Ghadiri, Lawrence E. Kidder, **Prayush Kumar**, Marlo Morales, Abhishek Ravishankar, Antoni Ramos-Buades, Katie Rink, Hannes R. Rüter, Mark A. Scheel, Md Arif Shaikh, Daniel Tellez. Phys. Rev. D 114 (04), 044078 (2026)
68. *Entropy of Full Covering of the Kagome Lattice by Straight Trimers*, **Deepak Dhar**, Tiago J. Oliveira, R. Rajesh, Jürgen F. Stilck. Phys. Rev. E 114 (02), 024156 (2026)
69. *From Quantum Dimers to the  $\pi$ -flux Toric Code via Deconfined Multicriticality*, **Ankush Chaudhary**, Sergej Moroz, **Subhro Bhattacharjee**. Accepted in Phys. Rev. B (2026) arXiv:2603.23154 DOI: <https://doi.org/10.1103/1bht-9h21>
70. *Imprints of Information Scrambling on Eigenstates of a Quantum Chaotic System*, **Bikram Pain, Ratul Thakur, Sthitadhi Roy**. Accepted in Phys. Rev. B (2026) arXiv:2507.02853 DOI: <https://doi.org/10.1103/r1gj-g99c>
71. *Quantized Transport in Floquet Topological Insulators*, **Rekha Kumari, Manas Kulkarni, Abhishek Dhar**. Accepted in Phys. Rev. B (2026) arXiv:2605.13066 DOI: <https://doi.org/10.1103/9y1p-g6f7>

## ArXiv – 41

1. *Merger Remnant and Eccentricity Dynamics Surrogates for Eccentric Nonspinning Black Hole Binaries*, Adhrit Ravichandran, Peter James Nee, Keefe Mitman, Tousif Islam, Scott E. Field, Vijay Varma, Michael Boyle, Andrea Ceja, Nils Deppe, Noora Ghadiri, Lawrence E. Kidder, **Prayush Kumar**, Marlo Morales, Jordan Moxon, Kyle C. Nelli, Harald

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2. *Subleading Chern-Simons Soft Factors in Perturbative de Sitter*, Pratik Chattopadhyay, **Avi Wadhwa**. arXiv:2605.05130
  3. *Quantized Transport in Floquet Topological Insulators*, **Rekha Kumari, Manas Kulkarni, Abhishek Dhar**. arXiv:2605.13066
  4. *Magnetic Prandtl Number Dependence of Plasmoid-mediated Reconnection*, **Vinay Kumar**, Axel Brandenburg. arXiv:2605.18946
  5. *A Dynamical Systems View of Training Generative Models and the Memorization Phenomenon*, **Siva Athreya**, Chiranjib Bhattacharya, Vivek S. Borkar. arXiv:2605.19483
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