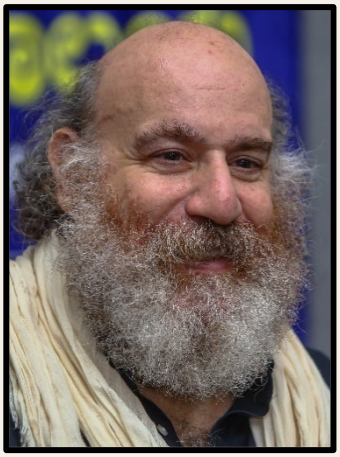
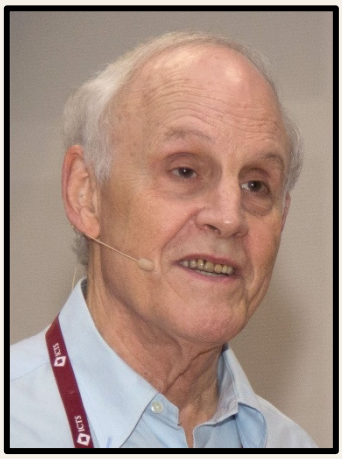
ACTIVITY REPORT

(May-August 2025)

ICTS | INTERNATIONAL CENTRE for THEORETICAL SCIENCES

TATA INSTITUTE OF FUNDAMENTAL RESEARCH





WILLIAM BIALEK was elected to the prestigious American Academy of Arts and Sciences (AAA&S).

DAVID J. GROSS was awarded the 2025 Basic Science Lifetime Award (BSLA) in Physics by the International Congress of Basic Science (ICBS).

ICTS-TIFR signed a new collaboration with Ashoka University's Meetings and Workshops Office. This partnership marks an important step towards fostering interdisciplinary research and academic exchange.

ICTS-TIFR launched the Pushkala and Ramani Travel Fellowship for ICTS Women Researchers for the year 2025-26.

I ICTS ACTIVITIES

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

Programs/Discussion Meetings held: 12

Academic visitors to ICTS-TIFR: 83

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

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

Papers published: 49

arXiv submissions: 44

Ia. PROGRAMS

Geometry and Analysis of Minimal Surfaces
Organizers: Rukmini Dey (ICTS-TIFR, Bengaluru), Rafe Mazzeo (Stanford University, USA), Charles Ouyang (Washington University, USA) and Franz Pedit (University of Massachusetts, Amherst, USA) | 18-29 August 2025

Data Science: Probabilistic and Optimization Methods II
Organizers: Jatin Batra (TIFR, Mumbai), Vivek Borkar (IIT Bombay, Mumbai), Sandeep Juneja (Ashoka University, India), Praneeth Netrapalli (Google DeepMind, India) and Devavrat Shah (MIT, Cambridge, USA) | 4-15 August 2025

Unifying Theories in High-Dimensional Biophysics
Organizers: Marianne Bauer (Delft University of Technology, Netherlands), Akshit Goyal (ICTS-TIFR, Bengaluru), Sidhartha Goyal (University of Toronto, Canada) and Gautam Reddy (Princeton University, USA) | 21 July-1 August 2025

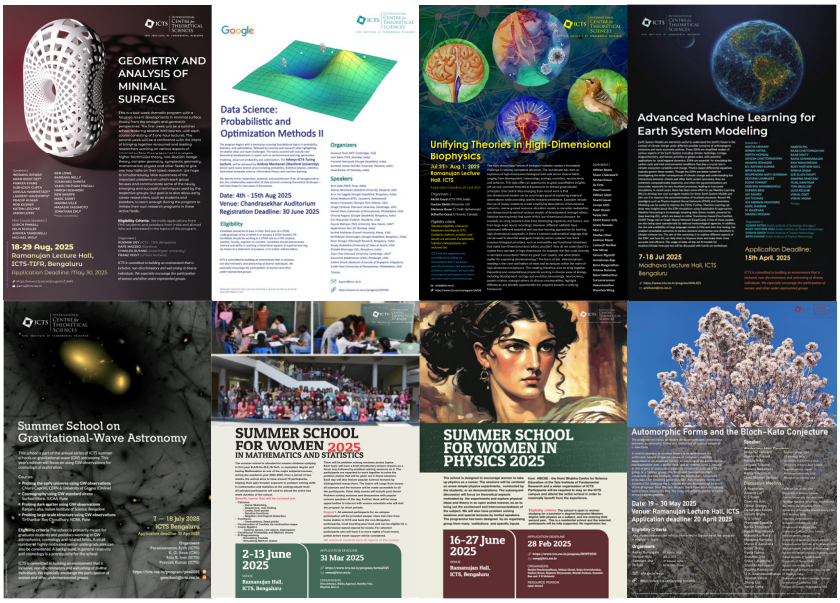
Advanced Machine Learning for Earth System Modeling
Organizers: Roxy Mathew Koll (IITM Pune), Bipin Kumar (IITM Pune), Adway Mitra (IIT Kharagpur) and Shikha Singh (IITM Pune) | 7-18 July 2025

Summer School on Gravitational-Wave Astronomy
Organizers: Parameswaran Ajith (ICTS-TIFR, Bengaluru), K.G. Arun (CMI, Chennai), Bala R. Iyer (ICTS-TIFR, Bengaluru) and Prayush Kumar (ICTS-TIFR, Bengaluru) | 7-18 July 2025

Summer School for Women in Physics 2025
Organizers: Ranjini Bandyopadhyay (RRI, Bengaluru), Mahua Ghosh (Mount Carmel College, Bengaluru), Kripa Gowrishankar (APU, Bengaluru), Sushan Konar (NCRA Pune), P.K. Mohanty (IISER Kolkata), Rajaram Nityananda (ICTS-TIFR, Bengaluru), Shirish Pathare (HBCSE Mumbai) and Sumathi Rao (ICTS-TIFR, Bengaluru) | 16-27 June 2025

Summer School for Women in Mathematics and Statistics
Organizers: Nikita Agarwal (IISER Bhopal), Siva Athreya (ICTS-TIFR, Bengaluru), Rhythm Grover (IIT Guwahati) and Dootika Vats (IIT Kanpur) | 2-13 June 2025

Automorphic Forms and the Bloch–Kato Conjecture
Organizers: Ashay Burungale (University of Texas, Austin, USA), Haruzo Hida (University of California, Los Angeles, USA), Somnath Jha (IIT Kanpur) and Ye Tian (MCM, Chinese Academy of Sciences, China) | 19-30 May 2025



Ib. DISCUSSION MEETINGS

Discussion Meeting on Fractionalized Quantum Matter
Organizers: Subhro Bhattacharjee, Rajesh Gopakumar, Sumathi Rao and Sthitadhi Roy (ICTS-TIFR, Bengaluru), Arindam Ghosh (IISc, Bengaluru) | 28-29 July 2025

Harmonic Maass Forms, Mock Modular Forms and Their Applications
Organizers: Ajit Bhand (IISER Bhopal) and Karam Deo Shankhadhar (IISER Bhopal) | 30 June-4 July 2025

Geometry, Probability, and Algorithms
Organizers: Akash Kumar (IIT Bombay, Mumbai), Anand Louis (IISc, Bengaluru) and Piyush Srivastava (TIFR, Mumbai) | 12-16 May 2025

Gravitational Wave Open Data Workshop 2025
Organizers: Parameswaran Ajith (ICTS-TIFR, Bengaluru), Ankur Barsode (ICTS-TIFR, Bengaluru), Bala Iyer (ICTS-TIFR, Bengaluru), Alorika Kar (ICTS-TIFR, Bengaluru), Prayush Kumar (ICTS-TIFR, Bengaluru), Akash Maurya (ICTS-TIFR, Bengaluru) and Koustav Narayan Maity (ICTS-TIFR, Bengaluru) | 12-14 May 2025

Ic. LECTURE SERIES

TURING LECTURES

The Mathematics of Large Machine Learning Models
Andrea Montanari (Stanford University, USA) | 11 August 2025

DISTINGUISHED LECTURES

A Strange New Universe: Where Bizarre Quantum Particles Rule
Jainendra Jain (Pennsylvania State University, USA) | 11 July 2025

PUBLIC LECTURES

Frontiers of Science
David Gross (Kavli Institute for Theoretical Physics, University of California, Santa Barbara, USA) | 4 August 2025

Id. VISITS OF SCIENTISTS

The following researchers visited ICTS during May-August 2025.

1. **Arul Lakshminarayan**, IIT Madras, Chennai
2. **Kartik Prabhu**, Raman Research Institute, Bengaluru
3. **Bhaskar Mukherjee**, S.N. Bose National Centre for Basic Sciences, Kolkata
4. **R. Shankar**, Institute of Mathematical Sciences, Chennai
5. **Aradhita Chattopadhyay**, Chennai Mathematical Institute, Chennai
6. **Manish**, Institute of Mathematical Sciences, Chennai
7. **Arindam Bhattacharya**, Harvard University, USA
8. **Pratik Wagle**, Max Planck Institute for Gravitational Physics, Germany
9. **Srijan Kumar**, Indian Institute of Science, Bengaluru
10. **Trishen Gunaratnam**, TIFR, Mumbai
11. **Tejaswi Venumadhav Nerella**, University of California, Santa Barbara, USA
12. **Ankur Renduchintala**, Birla Institute of Technology and Science, Rajasthan
13. **Ajay Mohan**, TIFR, Mumbai
14. **Satyam Sinha**, IISER, Pune
15. **Shakti Aishvarya**, St Joseph's University, Bengaluru
16. **Sudeshna Bhattacharjee**, Indian Institute of Science, Bengaluru

17. **Pankaj Sekhsaria**, Centre for Technology Alternatives for Rural Areas (CTARA)
18. **Supritha Bhowmick**, IISER Pune
19. **Suvendu Giri**, Perimeter Institute, Canada
20. **Apan Dinda**, IIT Hyderabad
21. **Pranay Agarwal**, University of Toronto, Canada
22. **Md Arif Shaikh**, Vivekananda Satavarshiki Mahavidyalaya, Jhargram
23. **Praful Gagrani**, University of Tokyo, Japan
24. **Tousif Islam**, Kavli Institute for Theoretical Physics, USA
25. **Biswajit Sahoo**, King's College London, UK
26. **Bhaswar Bhattacharya**, University of Pennsylvania, USA
27. **Aditya Vijaykumar**, Canadian Institute for Theoretical Astrophysics, Canada
28. **Sayak Bhattacharjee**, Stanford University, USA
29. **Srinivas Raghu**, Stanford University, USA
30. **Sourendu Gupta**, TIFR, Mumbai
31. **Ritam Mallick**, IISER Bhopal
32. **Sudipta Sarkar**, IIT Gandhinagar
33. **Debdipta Goswami**, Ohio State University, USA
34. **Dibyendu Roy**, Raman Research Institute, Bengaluru
35. **Udit Khanna**, Physical Research Laboratory, Ahmedabad
36. **Sreeman Reddy Kasi Reddy**, Weizmann Institute of Science, Israel
37. **Dootika Vats**, IIT Kanpur
38. **Sunil Mukhi**, IISER Pune
39. **Jainendra Jain**, Pennsylvania State University, USA
40. **Kshitij Gajjar**, International Institute of Information Technology, Hyderabad
41. **Nihar B Shah**, Carnegie Mellon University, USA
42. **Vikramaditya Giri**, ETH Zurich, Switzerland
43. **Ranveer Kumar Singh**, Rutgers University, USA
44. **Ajit Bhand**, IISER Bhopal
45. **Trishen Gunaratnam**, TIFR, Mumbai
46. **Ashvin Vishwanath**, Harvard University, USA
47. **Prashant Kocherlakota**, Harvard University, USA
48. **Vidyanand Nanjundiah**, Centre for Human Genetics, Bengaluru
49. **Priya Subramanian**, University of Auckland, New Zealand
50. **Adhip Agarwala**, IIT Kanpur
51. **Carmen Coelho**, Centre for Human Genetics, Bengaluru
52. **Mahesh M. Bandi**, Okinawa Institute of Science and Technology Graduate University, Japan
53. **K. G. Arun**, Chennai Mathematical Institute, Chennai
54. **Dhruv Shah**, IISER Mohali
55. **Abhiram Kidambi**, Max Planck Institute for Mathematics in the Sciences, Germany
56. **Satyen Patel**, IISER Pune
57. **Pradip Kumar**, Shiv Nadar university, Delhi
58. **Rahul Kumar Singh**, IIT Patna
59. **Manan Bhatia**, MIT, USA
60. **Ganpathy Murthy**, University of Kentucky, USA
61. **Archak Purkayastha**, IIT Hyderabad
62. **Satyam Sinha**, IISER Pune

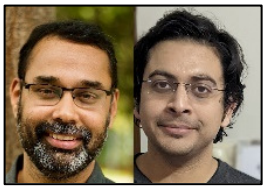
63. **Trishen Gunaratnam**, TIFR, Mumbai
64. **Dipankar Roy**, Université Côte d'Azur, France
65. **Siddhartha Mukherjee**, IIT Kanpur
66. **Sreejith G.J.**, IISER Pune
67. **Shivaji Roy Chowdhury**
68. **Khushi**, IIT Mandi
69. **Yenisi Das**, ISI Kolkata
70. **Priyadarshini Pandit**, IIT Kanpur
71. **Sangeeth Krishnan**, NIT Calicut
72. **Bikram Pal**, IISER Kolkata
73. **Anubhav Ganguly**, IISER Mohali
74. **Navin Sridhar**, Stanford University, USA
75. **Adith Sai Aramthottil**, Jagiellonian University, Poland
76. **Arjun Mandyam Dhati**, IISER Pune
77. **Joe P. Ninan**, TIFR Mumbai
78. **Donal O'Connell**, University of Edinburgh, Scotland
79. **Akshatha Suresh**, National Institute of Technology, Calicut
80. **Sayantan Mandal**, IISER, Tirupati
81. **Shraddhanjali Choudhury**, IIT Madras, Chennai
82. **Shivani Choudhury**, Bangalore University, Bengaluru
83. **Kush Coshic**, Max Planck Institute of Biophysics, Germany

Ie. NEWS ON GRANTS, AWARDS AND FELLOWSHIPS

RAMA GOVINDARAJAN received the **Outstanding Referee Award of the American Physical Society (APS)**. She was awarded **J.C. Bose grant** of ANRF (Anusandhan National Research Foundation).

SIVA ATHREYA, JAIKUMAR RADHAKRISHNAN and ASHOKE SEN were awarded the prestigious 2025 **INSA Distinguished Lecture Fellowship**.

MANAS KULKARNI, ANUPAM KUNDU AND ICTS postdoctoral fellow JITENDRA KETHEPALLI (along with Herbert Spohn of Technische Universitat, Munchen, Germany)'s publication in the Journal of Statistical Mechanics, titled "Lax Random Matrices from Calogero Systems," was selected for the **Highlights collection by the JSTAT Scientific Directors**.



PARAMESWARAN AJITH and PRAYUSH KUMAR, in collaboration with their Italian partners at Gran Sasso Science Institute in L'Aquila (Jan Harms and Andrea Maselli), were awarded a **joint Indo-Italian research grant** under the international bilateral Science & Technology program of the DST.

ICTS Senior Visiting Professor GAUTAM MANDAL was awarded the prestigious **DAE Raja Ramanna Chair.**

ICTS Endowed Visiting Professor SRIRAM RAMASWAMY was elected as an **international member of the prestigious National Academy of Sciences (NAS) of the USA**.

ICTS graduate student SANTHIYA PS was selected for the spring term of the **predoctoral program at the Center for Computational Astrophysics (CCA)** at the Flatiron Institute, Simons Foundation, USA.

II ICTS PEOPLE

IIa FACULTY

1. AAVISHKAR PATEL (currently at Flatiron Institute, USA) will join the ICTS-TIFR faculty on 1 September 2025. He uses theoretical and computational techniques to study strongly correlated gapless quantum states of matter, focusing on their dynamical properties and on the role of inhomogeneities
2. B. SURY (retired as professor at Indian Statistical Institute, Bengaluru) joined ICTS-TIFR as visiting faculty in July 2025.
3. The following scientists have joined ICTS-TIFR as Faculty Associates:
   PRASHANT KUMAR (IIT Bombay, Mumbai)
   JUNAID MAJEED BHAT (University of Kashmir, Kupwara)
   BALA IYER (ICTS-TIFR, Bengaluru)
   ASHWIN NAYAK (University of Waterloo, Canada)
   RAJU VENUGOPALAN (Brookhaven National Laboratory, USA)
   RAJARAM NITYANANDA (ICTS-TIFR, Bengaluru)

IIb STUDENTS

GRADUATE PROGRAM

1. Fourteen students joined the 2025 graduate studies program on August 1, 2025. The breakup is as follows:

Program	No. of students joined
Physics	8
Applied and Computational Mathematics	1
Mathematics	1
Physics of Life	4

2. This semester ICTS-TIFR is offering 15 courses (including elective, reading and core courses). Please refer to the website for more details: https://courses.icts.res.in/course/index.php?categoryid=27 Students from other institutions can enroll for ICTS courses. Apart from the ICTS courses, students have registered for courses from IISc, TIFR Colaba, CAM-TIFR, NCBS.
3. An orientation session for new students was held on 5 August 2025. As part of the orientation week held between 4-8 August 2025, various research groups offered an open hour, where some of the faculty/postdocs had an informal chat with the new students about the research that they do.
4. Following students registered for their PhD via Datanet 2.0:

a. **2022 Integrated PhD batch**: Kunal Kumar, Manish Jain, Neha Sharma, Priyanka Sinha, Sunit Ranjan Banerjee, Anikat Kankaria, Atharva Sanjay Naik
b. **2023 PhD batch**: Sam K Mathew, Shaibal Karmakar, Anjali Kundalpady, Anwesha Dey, Babli Khatun, Debanjan Karan, Devadevan M M, Naveen Kumar D, Pradeeptha R Jain, Ritesh Purushottam Harshe, Seema, Jyotirmoy Barman,

5. The following students defended their thesis.
   a. **Souvik Jana** (GS 2019 PhD Batch) defended his thesis on 04 June 2025.
   b. **Saurav Pandey** (GS 2018 Int. PhD Batch) defended his thesis on 16 June 2025.
   c. **Aditya Kumar Sharma** (GS 2018 Int. PhD Batch) defended his thesis on 15 July 2025
6. The following students submitted their thesis.
   a. **Shivam Kumar Sharma** (Advisor: R. Loganayagam)
   b. **Uddeepta Deka** (Advisor: P Ajith)
7. The following students submitted their synopsis.
   a. **Sparsh Gupta** (Advisor: Manas Kulkarni)
   b. **Aditya Singh Rajput** (Advisor: Vijaykumar Krishnamurthy)
   c. **Harshit Joshi** (Advisor: Rama Govindarajan)
8. Graduate Studies Admissions 2025
   a. Offline interviews for the Graduate Studies in Physical Sciences Program 2025 via GATE/CSIR stream was conducted on 16, 17 and 18 June 2025. One offer was made.
   b. Offline interviews for the Graduate Studies in Physics of Life Program 2025 via GATE/CSIR stream was conducted on 20 June 2025. Anoop T of Cochin University of Science and Technology has joined the program.
9. The summer 2025 semester commenced on 1 May 2025 and graduate students have registered for the following summer projects and reading courses.
   a. Reading course on Introduction to Atmospheric and Oceanic Flows (Rama Govindarajan).
   b. Reading course on Modern Theory of Turbulence (Samriddhi Sankar Ray).
   c. Reading course on Problem Solving Techniques in Analysis (Siva Athreya).
   d. Reading course on Visual Geometry and Topology (Pranav Pandit).

POSTDOCTORAL PROGRAM

1. Postdoctoral applications for the summer cycle 2026 is currently in the screening stage: https://www.icts.res.in/academic/postdoctoral-fellowships
2. Subsequent affiliations of postdocs who finished their tenure at ICTS-TIFR between May-August 2025

a. **Athira P.V.**: Postdoctoral fellow at Institute of Mathematical Sciences, Chennai
b. **Arun Kumar Varanasi:** Assistant Professor at Saintgits College, Kerala
c. **Subham Ghosh**: Postdoctoral fellow at Asia Pacific Centre for Theoretical Physics (APCTP), South Korea
d. **Rohit Sarma Sarkar:** Postdoctoral fellow at N3Cat-Universitat Politècnica de Catalunya in Barcelona

3. From the Fall 2025 hiring cycle, 4 candidates have joined ICTS as postdoctoral fellows: Amit Kumar, Shrinit Singh, Venkata Sai Saketh Muddu and Kaushik Paul.

LONG-TERM VISITING STUDENTS PROGRAM

Applications were invited for the ICTS Long-Term Visiting Students Program 2025. https://www.icts.res.in/academic/long-term-visiting-student-program.
Following students have joined the program in August 2025:

Name	Current Affiliation	Faculty Mentor
Aditi Anand	Institute of Chemical Technology, Mumbai	Vishal Vasan
Aman Kushwaha	University of Delhi	Siva Athreya
Aniket Nath	NISER, Bhubaneswar	Pallavi Bhat
Anuraag Reddy	IISER, Pune	Prayush Kumar
Anwesha Malla	IISc, Bengaluru	Sthitadhi Roy
Arjun Mandyam Dhati	IISER, Pune	Akshit Goyal
Kaustav Choubey	Universite Paris-Saclay, Orsay, France	Riddhipratim Basu & Anirban Basak
Priyanka Karmakar	ISI, Bengaluru	Siva Athreya
Rajit Sen	IISER, Kolkata	Anupam Kundu
Sai Anirudh Kumar Korukonda	IISc, Bengaluru	Sumathi Rao
Satyen Patel	IISER, Pune	Rukmini Dey
Shashank Singh	IIT Dhanbad	Jim Thomas
Trinanda Bhuyan	Tezpur University, Assam	Sumathi Rao

ICTS - S. N. BHATT MEMORIAL EXCELLENCE FELLOWSHIP PROGRAM

The ICTS - S. N. Bhatt Memorial Excellence Fellowship Program 2025 was conducted between 12 May 2025 to 4 July 2025. Seven students joined the eight-week long program. For more details, please visit https://www.icts.res.in/academic/summer-research-program

Name	Affiliation	Faculty Mentor	Project title
Adrija Chatterjee	ISI, Bengaluru	Siva Athreya	Box Dimension of Fractals
Aishee Bhattacharya	ISI, Kolkata	Anirban Basak & Riddhipratim Basu	Ising model and phase transition: on locally tree-like graphs
Naman Mishra	IISc, Bengaluru	Anirban Basak & Riddhipratim Basu	Fast Mixing for Graph Colorings
Nishant Lamboria	ISI, Kolkata	Anirban Basak & Riddhipratim Basu	Cutoff for the Ising Model on Finite Regular Graphs via Information Percolation
Reet Jaiswal	IISER, Mohali	Brato Chakrabarti	Flows in hairy channels
Siddhesh Patil	IISc, Bengaluru	Trishen Gunaratnam	Weakly self-avoiding walks in high dimensions
Soumyadip Niyogi	IISER, Thiruvananthapuram	Pallavi Bhatt	Detectability of Simulated Synchrotron Emission from Magnetic Reconnection in Galaxy Clusters

III OUTREACH

PUBLIC LECTURE

Frontiers of Science
David Gross (Kavli Institute for Theoretical Physics, University of California, Santa Barbara, USA) | 4 August 2025

KAAPI WITH KURIOSITY

The Mathematics of Soap Bubbles
Franz Pedit (University of Massachusetts, Amherst, USA) | 24 August 2025

How to Read a Genome
Michael Desai (Harvard University, USA) | 27 July 2025

What's in your DNA? Tales from the Human Genome
Shweta Ramdas (Centre for Brain Research, IISc campus, Bengaluru) | 22 June 2025

Coding Theory: Error-Resilience via Judicious Redundancy
Venkatesan Guruswami (University of California, Berkeley, USA) | 10 May 2025

MATHS CIRCLE INDIA

ICTS conducted five online Maths Circle India sessions during May-August 2025.

Session 82
Conducted by: Mainak Ghosh, R. Nandagopal and B. Sury | **Interactive session**: 22 August 2025

Session 81
Conducted by: Abhishek Bhattacharjee | **Interactive session:** 18 July 2025

Session 80
Conducted by: Abhishek Bhattacharjee | **Interactive session:** 4 July 2025

Session 79
Conducted by: Akash Kumar | **Interactive session:** 26 June 2025

Session 78
Conducted by: Akash Kumar | **Interactive session**: 12 June 2025

ICTS-RRI MATHS CIRCLE

During May-August 2025, seven maths circle sessions were held at the Raman Research Institute, Bengaluru.

Session 51
Conducted by: Disha Kuzhively, Joseph Samuel | **Interactive session**: 09 August 2025

Session 50
Conducted by: Joseph Samuel | **Interactive session**: 26 July 2025

Session 49
Conducted by: Joseph Samuel | **Interactive session:** 12 July 2025

Session 48
Conducted by: Ashwin Guha | **Interactive session:** 28 June 2025

Session 47
Conducted by: Ashwin Guha | **Interactive session:** 14 June 2025

Session 46
Conducted by: Jaikumar Radhakrishnan | **Interactive session:** 24 May 2025

Session 45
Conducted by: Jaikumar Radhakrishnan | **Interactive session**: 10 May 2025

MATHSPARK SPECIAL EVENTS

MathSpark 2025
Conducted by: Kaushik Basu (University of California, Berkeley, USA) | **Interactive session:** 8 August 2025

How Many Digits Does the Repeating Decimal Expansion of 1/1729 Have?
Conducted by: Apoorva Khare (IISc Bengaluru) | **Interactive session:** 8 May 2025

SCHOOL VISITS

The ICTS Outreach team visited St. Anne's School in Hesaraghatta on 3 July 2025, and conducted a workshop on Commensurables and Irrationals for 47 students of Class 10. Through hands-on activities using paper strips and string as measuring tools, students explored the idea that all positive rational numbers are commensurable with each other. They were also introduced to the technique of proof by contradiction. During the session, two students observed that the set of even numbers and the set of natural numbers can be put in one-to-one correspondence. The session ended with a note on the many open questions in mathematics that still remain unsolved, and how future researchers perhaps some among them will be needed to help find the answers.

The ICTS Outreach team also visited HSLN Global Smart School in Hesaraghatta on 1 July 2025 and conducted a short workshop for 26 students from classes 8, 9, and 10. The session focused on understanding the number pi (π). Students explored two methods of estimating pi. One method involved using a circular disc and thread to measure the ratio of the

circumference and the diameter, and the other using polygons with an increasing number of sides drawn inside and outside a circle to calculate their perimeters. Through hands-on activities and visual aids, students gained insight into how pi was estimated in ancient times using geometry.

MOVIE SCREENING

There was a special movie screening of *Galois. Story of a Revolutionary Mathematician*, a cinematic journey through the short yet extraordinary life of Évariste Galois—mathematical genius, political radical, and romantic hero on 30 July 2025.

BOOK READING

An afternoon that brought science and art together through a reading from the new book *Two Revolutions: Einstein's Relativity and Quantum Physics*, jointly authored by the late black hole physicist C. V. Vishveshwara and his daughter, theoretical physicist Smitha Vishveshwara. The book explores the twin revolutions of Einstein's relativity and quantum physics, woven through personal reflections and imaginative storytelling. The event will feature artists and physicists sharing science, dramatized dialogues spanning themes from the quantum to cosmic, and a dance performance interpreting the story of the Universe and the rhythm of scientific discovery through movement.

ANNEXURE - A

The following are the details of seminars and colloquia during the period May-August 2025:

Symmetric Tensor Scars with Tunable Entanglement from Volume to Area Law
Bhaskar Mukherjee (S.N. Bose National Centre for Basic Sciences, Kolkata) | 26 August 2025

Lensing, Not Luck! Forecasting the Efficiency of Gravitational-wave Strong Lensing Search
Ankur Barsode (ICTS-TIFR, Bengaluru) | 21 August 2025

Scarring and Quantum-classical Correspondence for Quantum Channels
Arul Lakshminarayan (Indian Institute of Technology Madras, Chennai) | 20 August 2025

Computing Infrared Observables in Scattering
Kartik Prabhu (Raman Research Institute, Bengaluru) | 20 August 2025

The Howe-Moore Ergodicity Theorem
T. N. Venkataramana (ICTS-TIFR, Bengaluru) | 19 August 2025

A Catalogue and a Warning: The Great Nicobar Betrayal
Pankaj Sekhsaria (Centre for Technology Alternatives for Rural Areas, IIT Bombay) | 18 August 2025

Probing Gravity using Black Hole Ringdown
Pratik Wagle (Max Planck Institute for Gravitational Physics, Germany) | 18 August 2025

Open Quantum Mechanics for Cosmological Observers
Omkar Sanjay Shetye (ICTS-TIFR, Bengaluru) | 18 August 2025

Renormalons as Saddle Points
Arindam Bhattacharya (Harvard University, USA) | 18 August 2025

A "Dictionary" to Test GR with GW: From Observations to Theory
Suvendu Giri (Perimeter Institute, Canada) | 14 August 2025

Loops in Cosmological Correlators
Supritha Bhowmick (IISER, Pune) | 13 August 2025

Dirichlet's Theorem, Continued
T. N. Venkataramana (ICTS-TIFR, Bengaluru) | 12 August 2025

Solitons on Vaidya Spacetime and Hypersurfaces in Pseudo-Euclidean Space
Savita Rani (ICTS-TIFR, Bengaluru) | 11 August 2025

Inhomogeneous Phases and Glasses - A Many-body Perspective
Zohar Nussinov (Washington University in Saint Louis, USA) | 8 August 2025

Taming Eccentricity in Binary Black Hole Mergers
Tousif Islam (Kavli Institute for Theoretical Physics, USA) | 8 August 2025

Defining Eccentricity for Spin-precessing Binaries
Md Arif Shaikh (Vivekananda Satavarshiki Mahavidyalaya, Jhargram) | 7 August 2025

Möbius Randomness in the Hartle-Hawking State
Victor Godet (Sorbonne University, France) | 6 August 2025

Dirichlet's Theorem on the Infinitude of Primes
T. N. Venkataramana (ICTS-TIFR, Bengaluru) | 5 August 2025

Autocatalytic Reaction Networks in Ecology, Evolutionary Biology, and Economics
Praful Gagrani (The University of Tokyo, Japan) | 4 August 2025

Magnetized Bounds for Conformal Field Theories
Biswajit Sahoo (King's College London, UK) | 1 August 2025

The Host Environments of Compact Binaries
Aditya Vijaykumar (Canadian Institute for Theoretical Astrophysics, Canada) | 31 July 2025

Dynamic Multiscaling in Turbulent Flows with Polymer Additives: A Shell Model Study
Swapan Limbu (ICTS-TIFR, Bengaluru) | 30 July 2025

Random Walks, Bethe Ansatz and Riemann's Zeros
Giuseppe Mussardo (Scuola Internazionale Superiore di Studi Avanzati (SISSA), Italy) | 30 July 2025

Neutron stars and Gravitational waves: Decoding dense matter systems
Ritam Mallick (IISER, Bhopal) | 25 July 2025

Beyond Einstein: Search for New Gravitational Physics
Sudipta Sarkar (Indian Institute of Technology Gandhinagar) | 24 July 2025

Literature Review of Collision-coalescence Models in Clouds
Rajarshi Chattopadhyay (ICTS-TIFR, Bengaluru) | 24 July 2025

Revisiting the Gelman-Rubin Diagnostic in MCMC
Dootika Vats (Indian Institute of Technology, Kanpur) | 24 July 2025

Bifurcating Vortex Reconnections: A Departure from Anti-parallel Reconnection
Saumav Kapoor (ICTS-TIFR, Bengaluru) | 23 July 2025

Quantum Covariant Bit Threads
Sreeman Reddy Kasi Reddy (Weizmann Institute of Science, Israel) | 23 July 2025

Data-Driven Identification and Output Regulation Using Partially Observed Actuated Trajectories: A Koopman Bilinear Approach
Debdipta Goswami (Ohio State University, USA) | 17 July 2025

Quasi-characters Revisited
Sunil Mukhi (IISER, Pune) | 16 July 2025

Spectral Form Factor in Generic Many-body Quantum Chaotic Systems Across all Dyson Symmetry Classes
Dibyendu Roy (Raman Research Institute, Bengaluru) | 16 July 2025

When Waves Meet Vortices: A Topological Twist in Water
Mahesh Bandi (Okinawa Institute of Science and Technology, Japan) | 16 July 2025

Prospects of Observing Gravitational Lensing of Continuous Gravitational Waves
Aditya Kumar Sharma (ICTS-TIFR, Bengaluru) | 15 July 2025

MacDonald Indices of 4d N=2 SCFTs from Hilbert Series of Arc Spaces.
Ranveer Kumar Singh (Rutgers University, USA) | 10 July 2025

A Principled Approach to Randomized Selection under Uncertainty: Applications to Peer Review and Grant Funding
Nihar B Shah (Carnegie Mellon University, USA) | 8 July 2025

Physics of Cytokinesis
Aditya Singh Rajput (ICTS-TIFR, Bengaluru) | 4 July 2025

Echo Mapping Black Holes with Light
Prashant Kocherlakota (Black Hole Initiative, Harvard University, USA) | 30 June 2025

Superconductors are Topological Phases Protected by Generalized Symmetries
Ashvin Vishwanath (Harvard University, USA) | 30 June 2025

Soft Matter Quasicrystals: Minimal Recipes and New Tools to Analyse Them
Priya Subramanian (The University of Auckland, New Zealand) | 25 June 2025

Understanding Organ Size Determination: A Focus on Rate of Deceleration
Carmen Coelho (Centre for Human Genetics, Bengaluru) | 23 June 2025

Stability of Sedimenting Spheres Using an Idealized Two-Phase Continuum Model
Dylan James Reynolds (ICTS-TIFR, Bengaluru) | 20 June 2025

Thermalization and Hydrodynamics in Integrable Systems
Saurav Pandey (ICTS-TIFR, Bengaluru) | 16 June 2025

When is the CFT Attached to a Target Space Variety Rational?
Abhiram Kidambi (Max Planck Institute for Mathematics in the Sciences, Germany) | 11 June 2025

Exceptional Times when Bigeodesics Exist in Dynamical Last Passage Percolation
Manan Bhatia (Massachusetts Institute of Technology, USA) | 11 June 2025

Intersections of Random Walks
Trishen Gunaratnam (Tata Institute of Fundamental Research, Mumbai) | 11 June 2025

Strong Lensing of Gravitational Waves: A New Probe of Cosmology and the Nature of Dark Matter
Souvik Jana (ICTS-TIFR, Bengaluru) | 4 June 2025

The Characteristics of the Z-boson in Chern-Simons-matter Theory
Amiya Mishra (Yau Center of Southeast University, China) | 2 June 2025

Tensionless Strings: Closed and Open
Priyadarshini Pandit (Indian Institute of Technology, Kanpur) | 28 May 2025

Unitary Rigid Supersymmetry for the Chiral Graviton and Chiral Gravitino in de Sitter Spacetime
Vasileios Letsios (University of Mons, Belgium) | 21 May 2025

Spectral and Dynamical Observables in Disordered Open Quantum Systems
Sparsh Gupta (ICTS-TIFR, Bengaluru) | 20 May 2025

New Theoretical Insights into Black Hole Coronae
Navin Sridhar (Stanford University, USA) | 15 May 2025

Many-Body Localization in Bond-Disordered Spin-1/2 Chains
Adith Sai Aramthottil (Jagiellonian University, Poland) | 14 May 2025

Universality of the Microcanonical Entropy at Large Spin in Non-rational 2D CFTs
Sridip Pal (California Institute of Technology, USA) | 12 May 2025

Search for Evaporating Exoplanets and Protoplanetary Discs
Joe P. Ninan (Tata Institute of Fundamental Research, Mumbai) | 9 May 2025

Amplitudes for Hawking Radiation
Donal O'Connell (The University of Edinburgh, UK) | 8 May 2025

Looking at Bulk Points in General Geometries
Joydeep Chakravarty (McGill University, Canada) | 7 May 2025

Molecular Simulations of Nucleic Acid Packaging: Physical Virology and Beyond
Kush Coshic (Max Planck Institute of Biophysics, Germany) | 1 May 2025

COLLOQUIA

Motif Estimation, Polynomial Chaos, and the Ising Model
Bhaswar B. Bhattacharya (University of Pennsylvania, USA) | 5 August 2025

Unexpected surprises: History of the emergence of "Topological quantum states of matter"
Duncan Haldane (Princeton University, USA) | 28 July 2025

Watching Black Holes Work: Classical Energy Extraction and Jet Production
Prashant Kocherlakota (Black Hole Initiative, Harvard University, USA) | 27 June 2025

Euler's Zeta values
Haruzo Hida (University of California, USA) | 27 May 2025

ANNEXURE - B

PAPERS PUBLISHED – 102

In Journals – 49

1. *Understanding Nature's Choice of Genetic Languages*, **Apoorva D. Patel**. BioSystems, 250, 105428 (2025)
2. *Emergent Time in Hamiltonian General Relativity,* **Anurag Kaushal, Naveen S. Prabhakar, Spenta R. Wadia**. Phys. Rev. D 111 (10), 106006 (2025)
3. *Geometric Effects in Large Scale Intracellular Flows,* Olenka Jain, **Brato Chakrabarti**, Reza Farhadifar, Elizabeth R. Gavis, Michael J. Shelley, and Stanislav Y. Shvartsman. Phys. Rev. X Life 3 (02), 023007 (2025)
4. *Enhanced Passive Tracer Dispersion by an Energetic Internal Wave Continuum*, C. P. Sanjay, **Jim Thomas**. J. Geophysical Research: Oceans, 130 (05) e2024JC021754 (2025)
5. *Possibilities for Enhanced Electron-phonon Interactions and High-Tc superconductivity in Engineered Bimetallic Nano-structured Superlattices,* Shinjan Mandal, Shrihari Soundararajan, Manish Jain, **H. R. Krishnamurthy.** Phys. Rev. B 111 (18), 184507 (2025)
6. *Spectral Multifractality and Emergent Energy scales Across the Many-Body Localisation Transition*, **Sthitadhi Roy**. Phys. Rev. B 111 (18), 184201 (2025)
7. *Surrogate Modeling of Gravitational Waves Microlensed by Spherically Symmetric Potentials,* **Uddeepta Deka**, Gopalkrishna Prabhu, Md Arif Shaikh, Shasvath J. Kapadia, Vijay Varma, Scott E. Field. Phys. Rev. D 111 (10), 104042 (2025)
8. *Temperature Switchable Self-propulsion Activity of Liquid Crystalline Microdroplets*, Manoj Kumar, Siddharth Sane, Aniruddh Murali, **Shashi Thutupalli**. Soft Matter, 21 (19), 3782-3788 (2025)
9. *Phases and Phase Transitions in a Dimerized Spin-½ XXZ chain*, **Harsh Nigam**, Ashirbad Padhan, Diptiman Sen, Tapan Mishra, **Subhro Bhattacharjee**. Phys. Rev. B 111 (19), 195131 (2025)
10. *Computational Astrophysics, Data Science & AI/ML in Astronomy: A Perspective from Indian Community*, Prateek Sharma, Bhargav Vaidya, Yogesh Wadadekar, Jasjeet Bagla, Piyali Chatterjee, Shravan Hanasoge, **Prayush Kumar**, Dipanjan Mukherjee, Ninan Sajeeth Philip, Nishant Singh. J. Astrophys. Astr. 46, 28 (2025) (Review article)
11. *Logarithmic Entanglement Light Cone from Eigenstate Correlations in the Many-body Localised Phase*, **Ratul Thakur, Bikram Pain, Sthitadhi Roy.** Phys. Rev. B 111 (17), 174206 (2025)
12. *Measurement-invisible Quantum Correlations in Scrambling Dynamics,* **Alan Sherry, Sthitadhi Roy**. Phys. Rev. B (Letters) 111 (18), L180301 (2025)
13. *On the Normalization of Open-closed String Amplitudes,* **Ashoke Sen** and Barton Zwiebach. J. of High Energy Phys. 2025 (05) 188 (2025)

14. *Growing Length and Time Scales in Activity-mediated Glassy Dynamics in Confluent Cell Monolayers,* Souvik Sadhukhan, **Chandan Dasgupta**, Saroj Kumar Nandi. Phys. Rev. E 111 (05), 054416 (2025)
15. *On a Generalisation of the Coupon Collector Problem*, **Siva Athreya,** Satyaki Mukherjee, Soumendu Sundar Mukherjee. J. of Theoretical Probability 38, 54 (2025)
16. *Stokesian Settling from Quiescence: Experiments and Theory on History Effects and Unsteady Flow Structures*, Tomek Jaroslawski, **Divya Jaganathan, Rama Govindarajan**, Beverley McKeon. Phys. Rev. Fluids (Letter) 10 (06), L062301 (2025)
17. *Holography of Information in a Ball of Finite Radius,* **Nava Gaddam, Ashik H.** J. of High Energy Physics 2025 (06) 34 (2025)
18. *Potts and Random Cluster Measures on Locally Regular Tree-like Graphs*, **Anirban Basak,** Amir Dembo, Allan Sly. Commun. Math. Phys. 406 (7), 168 (2025)
19. *Influence of Boundary Geometry on Active Patterns*, **Jigyasa Watwani**, **Sakshi Pahujani**, **V Jemseena, Vishal Vasan, K Vijay Kumar**. Phys. Rev. E 111 (06) 064409 (2025). **This publication was highlighted as Editors' Suggestions.**
20. *Agency in the Evolutionary Transition to Multicellularity*, Stuart A Newman, Mariana Benítez, Ramray Bhat, Tilmann Glimm, **K. Vijay Kumar**, Vidyanand Nanjundiah, Daniel J. Nicholson, Sahotra Sarkar. Quarterly Review of Biology 100 (2) 83-118 (2025)
21. *The Moran Model with Random Resampling Rates,* **Siva Athreya**, Frank den Hollander, Adrian Röllin. Annals of Applied Probability 35 (3) 1852-1868 (2025)
22. *D-instanton Induced Effective Action and its Gauge Invariance,* **Ashoke Sen**. J. High Energy Phys. 2025 (06), 225 (2025)
23. *An Exterior EFT for Hawking Radiation*, **R. Loganayagam**, **Godwin Martin**. J. High Energy Physics 2025 (06), 184 (2025)
24. *Metabolically Driven Flows Enable Exponential Growth in Macroscopic Multicellular Yeast*, Nishant Narayanasamy, Emma Bingham, Tanner Fadero, G. Ozan Bozdag, William C. Ratcliff, Peter Yunker, and **Shashi Thutupalli.** Science Advances 11 (25) eadr6399 (2025)
25. *Holographic Observers for Time-band Algebras*, Kristan Jensen, **Suvrat Raju**, Antony J. Speranza. J. High Energy Phys. 2025 (06), 242 (2025)
26. *Lax Random Matrices from Calogero Systems*, **Jitendra Kethepalli, Manas Kulkarni, Anupam Kundu,** Herbert Spohn. J. of Stat. Mech.: Theory and Experiment 2025 (3) 033101 (2025) **This publication has been selected by JSTAT Scientific Directors for the Highlights collection.**
27. *Quantized Two Terminal Conductance, Edge States and Current Patterns in an Open Geometry 2-dimensional Chern Insulator,* **Junaid Majeed Bhat**, R. Shankar, **Abhishek Dhar.** J. of Physics Condensed Matter 37 (27) 275601 (2025). Published in the Focus Issue on Topological Physics: From Fundamentals to Applications.

28. *Neural Networks Predicting Submesoscale Tracer Dispersion,* **Mayank Kumar Bijay, Jim Thomas**. J. of Geophysical Research: Machine Learning and Computation 2 (3) e2025JH000655 (2025)
29. *Convergent Cellular Adaptation to Freeze-thaw Stress via a Quiescence-like State in Yeast*, Charuhansini Tvishamayi, Farhan Ali, Nandita Chaturvedi, Nithila Madhu-Kumar, Zeenat Rashida, Ankita Ray, **Shashi Thutupalli**. eLife 1068571 (2025)
30. *Gravitational Wave Tails from Soft Theorem: A Short Review*, **Ashoke Sen.** Class. Quantum Grav. 42 (14) 143002 (2025) **Topical Review & Focus on Gravitational-Wave Memory Effects: From Theory to Observation**
31. *Control of Spatiotemporal Chaos by Stochastic Resetting*, Camille Aron, **Manas Kulkarni**. Phys. Rev. E 112 (01), 014220 (2025)
32. *Gromov-Witten invariants in Family and Quantum Cohomology,* Indranil Biswas, Nilkantha Das, Jeongseok Oh, **Anantadulal Paul**. *manuscripta math.* 176, 47 (2025)
33. *Supporting Information of Evolution of Atomic and Electronic Structure of Sn_xAg_{1-x}/Ag(001) Bimetallic Surface alloy Systems: A LEED, ARPES and DFT study,* Arunava Kar, Arpan Das, Suvankar Chakraborty, Rajdeep Banerjee, **Shobhana Narasimhan**, Krishnakumar S. R. Menon, Phys. Rev. B 112 (04), 045150 (2025)
34. *Three-dimensional Tearing Instability of Flux-tube-like Magnetic Fields*, **Vinay Kumar, Pallavi Bhat**. J. Plasma Phys. 91 (4) E99 (2025)
35. *Emergence of Coupled Korteweg-de Vries Equations in m fields*, **Sharath Jose, Manas Kulkarni, Vishal Vasan**. Studies in Applied Mathematics 155 (2) e70090 (2025)
36. *Evaporation and Pathogenesis of Levitated Bacteria-laden Surrogate Respiratory Fluid Droplets: At Different Relative Humidity and Evaporation Stages,* Amey Nitin Agharkar, Dipasree Hajra, Kush Kumar Dewangan, **Durbar Roy**, Dipshikha Chakravortty, Saptarshi Basu. Physics of Fluids 37 (08), 081905 (2025)
37. *Superconductivity in Spin-orbit coupled SU (8) Dirac Fermions on Honeycomb Lattice,* **Ankush Chaubey**, Basudeb Mondal, Vijay B. Shenoy and **Subhro Bhattacharjee**, Phys. Rev. B 112 (08), 085133 (2025)
38. *Influence Phase of a dS Observer II: Electromagnetism*, **R. Loganayagam, Omkar Shetye**. J. High Energy Phys. 2025 (08), 27 (2025)
39. *Large Deviations of the Largest Eigenvalue of Supercritical Sparse Wigner Matrices*, Fanny Augeri, **Anirban Basak.** Accepted in Annals of Probability 53 (05) (2025)
40. *Geodesic Trees in Last Passage Percolation and Some Related Problems*, Márton Balázs, **Riddhipratim Basu**, Sudeshna Bhattacharjee. Accepted in/ In press Annales de l'Institut Henri Poincaré. arXiv:2308.07312
41. *Sausage Volume of the Random String and Survival in a Medium of Poisson Traps*, **Siva Athreya**, Mathew Joseph, Carl Mueller. Accepted in Annales de l'Institut Henri Poincaré. arXiv:2212.03166

42. *Closure Invariants for Polarised Radio Interferometric Observations: a Graph Theoretical Approach,* **Vinay Kumar, Rajaram Nityananda, Joseph Samuel**. J. of Astrophysics and Astronomy 46. 56 (2025)
43. *Yamabe and Ricci Solitons on Vaidya Spacetime,* **Savita Rani**, Ram Shankar Gupta, and Young Jin Suh, International J. of Geometric Methods in Modern Physics 2550218 (2025)
44. *c=1, R=1 and N≫1 : ZZ instantons in 2D String Theory and Matrix Integrals*, **Rishabh Kaushik**. J. High Energy Phys. 2025 (08), 177 (2025)
45. *Kalb-Ramond Field, Black Holes and Black Strings in (2 + 1)D,* **Meseret Asrat**. J. High Energy Phys. 2025 (08), 135 (2025)
46. *Active Waves from Non-reciprocity and Cytoplasmic Exchange,* Jason R. Picardo, **V. Jemseena, K. Vijay Kumar**. Phys. Rev. E 112 (02), L022401 (2025)
47. *Data-driven Extraction, Phenomenology and Modeling of Eccentric Harmonics in Binary Black Hole Merger Waveforms,* Tousif Islam, **Tejaswi Venumadhav,** Ajit Kumar Mehta, Isha Anantpurkar, Digvijay Wadekar, Javier Roulet, Jonathan Mushkin, Barak Zackay, Matias Zaldarriaga. Phys. Rev. D 112 (04), 044070 (2025)
48. *Dynamics and Clustering of Sedimenting Disc Lattices,* **Harshit Joshi,** Rahul Chajwa, **Sriram Ramaswamy**, Narayanan Menon, **Rama Govindarajan**. J. Fluid Mech., 1017, A1, (2025)
49. *Ordering and Defect Cloaking in Non-reciprocal Lattice XY Models,* Pankaj Popli, Ananyo Maitra, **Sriram Ramaswamy**. Phys. Rev. Lett. 135 (08), 088303 (2025)

ArXiv – 44

1. *Impurity Dynamics in a Zero-temperature Gas*, **Umesh Kumar, Abhishek Dhar**, P. L. Krapivsky. arXiv:2505.02225
2. *Understanding Large-scale Dynamos in Unstratified Rotating Shear Flows*, **Tushar Mondal, Pallavi Bhat**, Fatima Ebrahimi, Eric G. Blackman. arXiv:2505.03660
3. *Intermittent Fluctuations Determine the Nature of Chaos in Turbulence,* **Aikya Banerjee, Ritwik Mukherjee,** Sugan Durai Murugan, **Subhro Bhattacharjee, Samriddhi Sankar Ray** arXiv:2505.09538
4. *The SXS Collaboration's Third Catalog of Binary Black Hole Simulations,* Mark A. Scheel, Michael Boyle, Keefe Mitman, Nils Deppe, Leo C. Stein, Cristóbal Armaza, Marceline S. Bonilla, Luisa T. Buchman, Andrea Ceja, Himanshu Chaudhary, Yitian Chen, Maxence Corman, Károly Zoltán Csukás, C. Melize Ferrus, Scott E. Field, Matthew Giesler, Sarah Habib, François Hébert, Daniel A. Hemberger, Dante A. B. Iozzo, Tousif Islam, Ken Z. Jones, Aniket Khairnar, Lawrence E. Kidder, Taylor Knapp, **Prayush Kumar**, et al. (34 additional authors not shown) arXiv:2505.13378
5. *Signatures from Metastable Oppositely-charged Black Hole Binaries in Scalar Gauss-Bonnet Gravity*, Guillermo Lara, Maxence Corman, Peter James Nee, Harald P. Pfeiffer, Nils L. Vu, Nikolas A. Wittek,

Marceline S. Bonilla, Alexander Carpenter, Nils Deppe, Lawrence E. Kidder, **Prayush Kumar**, Geoffrey Lovelace, Alexandra Macedo, Iago B. Mendes, Kyle C. Nelli, Mark A. Scheel, William Throwe. arXiv:2505.14785

6. *Device-independent Ternary Quantum Key Distribution Protocol Based on the Impossible Colouring Game*, Aniket Basak, Rajeet Ghosh, **Rohit Sarma Sarkar**, Chandan Goswami, Avishek Adhikari. arXiv:2505.15599
7. *An Accurate Modeling of Nano-Hertz Gravitational Wave Signal from Eccentric Supermassive Binary Black Holes: Essential Step Towards a Robust Discovery*, Mohit Raj Sah, **Akash Maurya,** Suvodip Mukherjee, **Prayush Kumar,** Vida Saeedzadeh, Arif Babul, Chandra Kant Mishra, Kaushik Paul, Thomas R. Quinn, Michael Tremmel. arXiv:2505.22745
8. *Response to the Comment on The Inconvenient Truth about Flocks by Chaté and Solon,* Leiming Chen, Patrick Jentsch, Chiu Fan Lee, Ananyo Maitra, **Sriram Ramaswamy**, John Toner. arXiv:2505.21602. This is a response to the comment arXiv:2504.13683 posted by Chaté and Solon in reference to the preprint arXiv:2503.17064.
9. *Ecosystems as Adaptive Living Circuits,* Ankit Dhanuka, Avi I. Flamholz, Arvind Murugan, **Akshit Goyal.** eLife arXiv:2506.22017
10. *Balancing the Cellular Budget: lessons in Metabolism from Microbes to Cancer,* B. Vibishan, Mohit Kumar Jolly, **Akshit Goyal**. arXiv:2506.20776
11. *Decorating Asymptotically Flat Space-Time with the Moduli Space of String Theory*, **Ashoke Sen.** arXiv:2506.13876
12. *Primordial Magnetic Fields and Modified Recombination Histories,* Jonathan Schiff, **Tejaswi Venumadhav**. arXiv:2506.16517
13. *Bose-Einstein Condensate Dark Matter in the Core of Neutron Stars: Implications for Gravitational-wave Observations,* **Samanwaya Mukherjee,** P. S. Aswathi, Chiranjeeb Singha, Apratim Ganguly. arXiv:2506.22353
14. *"Anticommuting" Z_2 Quantum Spin Liquids,* Sumiran Pujari, **Harsh Nigam**. arXiv:2506.03866
15. *Imprints of Information Scrambling on Eigenstates of a Quantum Chaotic System*, **Bikram Pain, Ratul Thakur, Sthitadhi Roy**. arXiv:2507.02853
16. *Proxitaxis: an Adaptive Search Strategy Based on Proximity and Stochastic Resetting,* Giuseppe Del Vecchio Del Vecchio, **Manas Kulkarni,** Satya N. Majumdar, Sanjib Sabhapandit. arXiv:2507.05800
17. *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. arXiv:2507.07021
18. *Periodic Drive Induced Half-Metallic Phase in Insulators and Correlated Metals,* Suryashekhar Kusari, Arnab Das, **H. R. Krishnamurthy**, Arti Garg. arXiv:2507.05935
19. *Do Mixed States Exhibit Deep Thermalisation?*, **Alan Sherry, Sthitadhi Roy**. arXiv:2507.14135

20. *A New Search Pipeline for Short Gamma Ray Bursts in Fermi/GBM Data -- A 50% Increase in the Number of Detections,* Ariel Perera, Barak Zackay, **Tejaswi Venumadhav**. arXiv:2507.05739
21. *Searching for Intermediate Mass Ratio Binary Black Hole Mergers in the Third Observing Run of LIGO-VIRGO-KAGRA,* Mark Ho-Yeuk Cheung, Digvijay Wadekar, Ajit Kumar Mehta, Tousif Islam, Javier Roulet, Emanuele Berti, **Tejaswi Venumadhav**, Barak Zackay, Matias Zaldarriaga. arXiv:2507.01083
22. *Improving Gravitational Wave Search Sensitivity with TIER: Trigger Inference using Extended Strain Representation,* Digvijay Wadekar, Arush Pimpalkar, Mark Ho-Yeuk Cheung, Benjamin Wandelt, Emanuele Berti, Ajit Kumar Mehta, **Tejaswi Venumadhav**, Javier Roulet, Tousif Islam, Barak Zackay, Jonathan Mushkin, Matias Zaldarriaga. arXiv:2507.08318
23. *Relativistic and Dynamical Love,* Abhishek Hegade K. R., K. J. Kwon, **Tejaswi Venumadhav**, Hang Yu, Nicolás Yunes. arXiv:2507.10693
24. *Cosmological Correlators in Gravitationally-constrained de Sitter States,* **Tuneer Chakraborty, Ashik H, Suvrat Raju**. arXiv:2507.15926
25. *The Physical Consequences of Sperm Gigantism*, Jasmin Imran Alsous, **Brato Chakrabarti**, Bryce Palmer, Michael J. Shelley. arXiv:2507.14567
26. *dot-PE: Sampler-free Gravitational Wave Inference Using Matrix Multiplication,* Jonathan Mushkin, Javier Roulet, Barak Zackay, **Tejaswi Venumadhav**, Oryna Ivashtenko, Digvijay Wadekar, Ajit Kumar Mehta, Matias Zaldarriaga. arXiv:2507.16022
27. *Fluctuating Interfaces in Barotropic Beta-plane Turbulence,* **Sandip Sahoo, Samriddhi Sankar Ray**. arXiv:2507.23493
28. *Viscosity Variation in Fluid Flows Across Scale,* Arjun Sharma, Ritabrata Thakur, **Sharath Jose**, **Rama Govindarajan**. arXiv:2507.23532 Invited article from Review for Modern Physics
29. *Screw Symmetry, Chiral Hydrodynamics and Odd Instability in Active Cholesterics*, Gareth P. Alexander, S. J. Kole, Ananyo Maitra, **Sriram Ramaswamy**. arXiv:2508.00684
30. *Partial Projected Ensembles and Spatiotemporal Structure of Information Scrambling,* **Saptarshi Mandal,** Pieter W. Claeys, **Sthitadhi Roy**. arXiv:2508.05632
31. *Generalized Perturbed Kepler Problem: Gravitational Wave Imprints from Eccentric Compact Binaries,* **Rajes Ghosh, R. Prasad**, Kabir Chakravarti, **Prayush Kumar**. arXiv:2508.06245
32. *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. arXiv:2508.07199
33. *Gravitational Waves from Strongly Magnetized Eccentric Neutron Star Binaries,* **R. Prasad**, **Anushka Doke, Prayush Kumar**. arXiv:2508.08234
34. *Solvable Models of Heat Transport in Quantum Mechanics,* **R Loganayagam**, Prithvi Narayan, Swathi T S. arXiv:2508.09253

35. *High to Low Temperature: O(N) Model at large N,* Justin R. David, **Srijan Kumar.** arXiv:2508.14872
36. *Binary Black Hole Population Inference Combining Confident and Marginal Events from the IAS-HM Search Pipeline,* Ajit Kumar Mehta, Digvijay Wadekar, Isha Anantpurkar, Javier Roulet, **Tejaswi Venumadhav,** Tousif Islam, Jonathan Mushkin, Barak Zackay, Matias Zaldarriaga. arXiv:2508.15350
37. *Multifractality in High-dimensional Graphs Induced by Correlated Radial Disorder,* David E. Logan, **Sthitadhi Roy.** arXiv:2508.15551
38. *Multiple Dirac Spin-Orbital Liquids in SU (4) Heisenberg Antiferromagnets on the Honeycomb Lattice,* Manoj Gupta, Arijit Haldar, **Subhro Bhattacharjee**, Tanusri Saha-Dasgupta. arXiv:2508.18372
39. *Streak generation in viscosity-stratified wall-bounded flows,* Anagha Madhusudanan, Simon J. Illingworth, **Rama Govindarajan**. arXiv:2508.20636
40. *Hydrodynamic instabilities in driven chiral suspensions,* **Seema Chahal, Brato Chakrabarti**. arXiv:2508.17879
41. *Double Excitations in Molecules,* Namana Venkatareddy, Victor Ghosh, **H. R. Krishnamurthy,** Manish Jain. arXiv:2508.16262
42. *Symmetries in Zero and Finite Center-of-mass Momenta Excitons,* Robin Bajaj, Namana Venkatareddy, **H. R. Krishnamurthy,** Manish Jain. arXiv:2508.16409
43. *Extreme Dynamics and Relaxation of Quantum Gases: A Hydrodynamic Approach,* **Ritwik Mukherjee, Abhishek Dhar, Manas Kulkarni, Samriddhi Sankar Ray**. arXiv:2509.00399
44. *Dynamically Generated Correlations in a Trapped Bosonic Gas via Frequency Quenches,* Nikhil Mesquita, **Manas Kulkarni,** Satya N. Majumdar, Sanjib Sabhapandit. arXiv:2509.00487

Conference Proceedings - 1

1. *Cooperative Motion in Equilibrium Phases Across Two-dimension Melting in Pure and Disordered Systems*, Saikat Dutta, Prashanti Jami, Pinaki Chaudhuri, **Chandan Dasgupta**, Amit Ghosal. arXiv:2411.15654 29th Intl. Conference on Statistical Physics (STATPHYS 2025), Poster Session, Florence, Italy, 13-18 July 2025. https://statphys29.org/wp-content/uploads/2025/06/Statphys29-Poster-Session-3.pdf

Consortium – 7

1. *Search for Gravitational Waves Emitted from SN 2023ixf*, The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration, A. G. Abac, R. Abbott, I. Abouelfettouh, F. Acernese, K. Ackley, S. Adhicary, N. Adhikari, R. X. Adhikari, V. K. Adkins, D. Agarwal, M. Agathos, M. Aghaei Abchouyeh, O. D. Aguiar, I. Aguilar, L. Aiello, A. Ain, T. Akutsu, S. Albanesi, R. A. Alfaidi, A. Al-Jodah, C.

Alléné, A. Allocca, et al. (1758 additional authors not shown) Astrophysical J. 985 (02) 183 (2025)

2. *All-sky Search for Short Gravitational-wave Bursts in the First Part of the Fourth LIGO-Virgo-KAGRA Observing Run,* LIGO Scientific Collaboration, Virgo Collaboration, KAGRA Collaboration. Physical Review D, submitted. arXiv:2507.12374
3. *All-sky search for long-duration gravitational-wave transients in the first part of the fourth LIGO-Virgo-KAGRA Observing run,* The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration. Physical Review D, submitted arXiv:2507.12282
4. *GW231123: a Binary Black Hole Merger with Total Mass 190-265 M⊙,* The LIGO Scientific Collaboration, The Virgo Collaboration, and The KAGRA Collaboration. arXiv:2507.08219
5. *GWTC-4.0: An Introduction to Version 4.0 of the Gravitational-Wave Transient Catalog, The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration,* A. G. Abac, et al. arXiv:2508.18080
6. *GWTC-4.0: Methods for Identifying and Characterizing Gravitational-wave Transients, The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration,* A. G. Abac, et. al. arXiv:2508.18081
7. *Upper Limits on the Isotropic Gravitational-Wave Background from the first part of LIGO, Virgo, and KAGRA's fourth Observing Run, The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration,* A. G. Abac, et. al. arXiv:2508.2072

Books – 1

1. *Motor Function of the Two-Component EEA1-Rab5 Revealed by dcFCCS,* J.A. Soler, A. Singh, M. Zerial, S. Thutupalli (2025). In: Lavelle, C., Le Gall, A. (eds) Molecular Motors. Methods in Molecular Biology, vol 2881. Humana, New York, NY. https://doi.org/10.1007/978-1-0716-4280-1_4. This is part of the book series: Methods in Molecular Biology (MIMB, volume 2881) Print ISBN978-1-0716-4279-5, Online ISBN978-1-0716-4280-1

ANNEXURE B