

ACTIVITY REPORT

(September-December 2024)

Former chairperson of the Tata Trusts and Tata Sons and Chairman of the TIFR Governing Council, Ratan Naval Tata passed away on October 9, 2024. Mr. Tata joined the Council in 1994, later taking charge as its chairman from 2001. Since the inception of ICTS-TIFR in 2007, Mr. Tata had been a steadfast source of guidance and support.



I | ICTS ACTIVITIES

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

Programs/Discussion Meetings held: 13

Academic visitors to ICTS-TIFR: 71

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

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

Papers published: 44

arXiv submissions: 22

Ia. PROGRAMS

Hearing Beyond the Standard Model with Cosmic Sources of Gravitational Waves

Organizers: Koushik Dutta (IISER Kolkata), Tathagata Ghosh (HRI, Allahabad), Anish Ghoshal (University of Warsaw, Poland) and Subhendra Mohanty (IIT Kanpur) | 30 December 2024-10 January 2025

Indo-French Workshop on Classical and Quantum Dynamics in Out of Equilibrium Systems

Organizers: Abhishek Dhar (ICTS-TIFR, Bengaluru), Manas Kulkarni (ICTS-TIFR, Bengaluru), Satya N. Majumdar (LPTMS, France), Gautam Mandal (TIFR Mumbai), Alberto Rosso (LPTMS, France) and Gregory Schehr (LPTHE, France) | 16-20 December 2024

Combinatorial Methods in Enumerative Algebra

Organizers: Angela Carnevale (University of Galway, Ireland), Uri Onn (Australian National University, Australia), Amritanshu Prasad (IMSc, Chennai), Pooja Singla (IIT Kanpur) and Christopher Voll (Bielefeld University, Germany) | 2-13 December 2024

Moist Convective Dynamics of Monsoons

Organizers: Gilles Bellon (CNRM Toulouse, France), Vishal Dixit (IIT Bombay), Bishakhdatta Gayen (IISc, Bengaluru) and Jim Thomas (ICTS-TIFR & TIFR-CAM, Bengaluru) | 18-29 November 2024

Circle Method and Related Topics

Organizers: Malleshm Kumhari (IIT Bombay), Ritabrata Munshi (ISI Kolkata) and Saurabh Kumar Singh (IIT Kanpur) | 28 October-8 November 2024

Discrete Integrable Systems: Difference Equations, Cluster Algebras and Probabilistic Models

Organizers: Arvind Ayyer (IISc, Bengaluru), Rei Inoue (Chiba University, Japan), Rinat Kedem (UIUC, USA), Sanjay Ramassamy (CNRS, France) and Ralph Willox (University of Tokyo, Japan) | 21 October-1 November 2024

3rd IAGRG School on Gravitation and Cosmology

Organizers: Parameswaran Ajith (ICTS-TIFR, Bengaluru), Sudipta Das (Visva-Bharati, Santiniketan), Archana Pai (IIT Bombay), Sudipta Sarkar (IIT Gandhinagar), Anjan Ananda Sen (JMI New Delhi) and Amitabh Virmani (CMI, Chennai) | 14-25 October 2024

Deterministic and Stochastic Analysis of Euler and Navier-Stokes Equations

Organizers: Ujjwal Koley (TIFR-CAM, Bengaluru) and Debayan Maity (TIFR-CAM Bengaluru) | 23 September-4 October 2024

Interdisciplinary Aspects of Chromatin Organization and Gene Regulation

Organizers: Mithun Kumar Mitra (IIT Bombay), Dimple Notani (NCBS-TIFR, Bengaluru) and Ranjith Padinhateeri (IIT Bombay) | 9-20 September 2024

Bangalore School on Statistical Physics XV

Organizers: Abhishek Dhar (ICTS-TIFR, Bengaluru) and Sanjib Sabhapandit (RRI, Bengaluru) | 4-20 September 2024



Ib. DISCUSSION MEETINGS

Quantum Many-Body Physics in the Age of Quantum Information

Organizers: Subhro Bhattacharjee (ICTS-TIFR, Bengaluru), Manas Kulkarni (ICTS-TIFR, Bengaluru), Subroto Mukerjee (IISc, Bengaluru) and Sthitadhi Roy (ICTS-TIFR, Bengaluru) | 25-29 November 2024

Climate Dynamics and Networks

Organizers: Neelima Gupte (IIT Madras, Chennai), Ramakrishna Ramaswamy (IIT Delhi) and Rupali Sonone | 11-15 November 2024

Zero Mean Curvature Surfaces

Organizers: Rukmini Dey (ICTS-TIFR, Bengaluru) and Pradip Kumar (Shiv Nadar University, Noida) | 2-6 September 2024

Ic. LECTURE SERIES

INFOSYS-ICTS CHANDRASEKHAR LECTURES

Topology of Electronic Materials and their Linear and Nonlinear Responses

Joel Moore (University of California, Berkeley, and Lawrence Berkeley National Laboratory, USA) | 26-28 November 2024

INFOSYS-ICTS RAMANUJAN LECTURES

Applied l-adic Cohomology

Philippe Michel (Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland) | 29 October-2 November 2024

The Onsager Theorem and Beyond

Camillo De Lellis (Institute for Advanced Study, Princeton, USA) | 26 September-3 October 2024

DISTINGUISHED LECTURES

Dissipation and Mixing: From Turbulent Flows to Weak Solutions

László Székelyhidi (Max Planck Institute for Mathematics in the Sciences, Germany) | 23 September 2024

Arithmetic Topological Quantum Field Theory

Minhyong Kim (University of Edinburgh, UK) | 2 September 2024

FOUNDATION DAY LECTURES

Two Paradoxes in the Theory of Games

Deepak Dhar (ICTS-TIFR, Bengaluru) | 27 December 2024

Id. VISITS OF SCIENTISTS

The following researchers visited ICTS during September-December 2024.

1. **Udit Khanna**, Institute of Mathematical Sciences, Chennai
2. **Ajit Balram**, Institute of Mathematical Sciences, Chennai
3. **Bikram Pal**, Indian Institute of Science Education and Research, Kolkata
4. **Ion Santra**, University of Gottingen, Germany
5. **Daksh Gupta**, Indian Institute of Technology, Kharagpur
6. **Vijay Patankar**, FLAME University, Pune
7. **Udupi Ashwin Kumar Venkatramana Nayak**, University of Waterloo, Canada
8. **Abhinav Kumar**, Renaissance Technologies, USA
9. **Kumarjit Saha**, Ashoka University, Sonapat
10. **Manuel Loparco**, École Polytechnique Fédérale de Lausanne, Switzerland
11. **Jason Picardo**, Indian Institute of Technology Bombay, Mumbai
12. **Siddhartha Mukherjee**, Indian Institute of Technology, Kanpur

13. **Chandrashekar Iyer**
14. **Mikhail Mironov**, Yandex Research, Russia
15. **Vishnu Prasath Thulasiraman**, Indian Institute of Science, Bengaluru
16. **Aditya Jain**, Ashoka University, Sonapat
17. **Sanjib Sabhapandit**, Raman Research Institute, Bengaluru
18. **Vidyanand Nanjundiah**, Centre for Human Genetics, Bengaluru
19. **Amolak Ratan Kalra**, University of Waterloo, Canada
20. **Eunwoo Lee**, Tata Institute of Fundamental Research, Mumbai
21. **Achin Vanaik**, Political scientist and writer
22. **Trishen Satyendran Gunaratnam**, University of Geneva, Switzerland
23. **Shreyas Gokhale**, Massachusetts Institute of Technology, USA
24. **Ranveer Kumar Singh**, Rutgers University, USA
25. **Raphaël Benjamin Chetrite**, Institut de Physique de Nice, France
26. **Bindusar Sahoo**, Indian Institute of Science Education and Research, Thiruvananthapuram
27. **Praneeth Netrapalli**, Google Research India, Bengaluru
28. **Projwal Banerjee**, Indian Institute of Technology, Palakkad
29. **Franz Pierre Marc Yves Ciceri**, Ecole Normale Supérieure de Lyon, France
30. **Arun Ravi**, Technische Universität Wien, Austria
31. **Somabha Mukherjee**, National University of Singapore, Singapore
32. **Akshay Bansal**, Virginia Tech, USA
33. **Maitraya Bhattacharyya**, Pennsylvania State University, USA
34. **Chetankumar Adappa Jalihal**, Max Planck Institute for Meteorology, Hamburg, Germany
35. **Mohit Kumar Jolly**, Indian Institute of Science, Bengaluru
36. **Shailesh BR**, Connect India artist in residence
37. **Lou Emma Masduraud**, Connet India artist in residence
38. **Prasun Dhang**, University of Colorado, Boulder, USA
39. **Hugo Touchette**, Stellenbosch University, South Africa
40. **Suman Kundu**, Weizmann Institute of Science, Israel
41. **Sreerup Raychaudhuri**, Banaras Hindu University, Varanasi
42. **Raghavendra Tripathi**, New York University Abu Dhabi, UAE
43. **Dileep Jatkar**, Harish-Chandra Research Institute, Allahabad
44. **Sumiran Pujari**, Indian Institute of Technology Bombay, Mumbai
45. **Yogesh**, Indian Institute of Science Education and Research, Mohali
46. **Shankar R.**, The Institute of Mathematical Sciences, Chennai
47. **Adrian Röllin**, National University of Singapore, Singapore
48. **Wilhelmus Theodorus Franciscus den Hollander**, Leiden University, The Netherlands
49. **Chaithanya K.V.S.**, University of Dundee, UK
50. **Nirmal Raj**, Indian Institute of Science, Bengaluru
51. **Ajit Kumar Mehta**, University of California, Santa Barbara, USA
52. **Pradeep Kumar Mohanty**, Indian Institute of Science Education and Research, Kolkata
53. **Shyama Narendranath**, Indian Space Research Organisation, Bengaluru

54. **Sanjoy Saha**, The Institute of Mathematical Sciences, Chennai
55. **Vikas Trivedi**, European Molecular Biology Laboratory, Barcelona, Spain
56. **Bhargav Rallabandi**, University of California, Riverside, USA
57. **Suman Jyoti De**, McGill University, Canada
58. **Abhishodh Prakash**, University of Oxford, UK
59. **Gaurav Chopra**, Indian Institute of Technology Madras, Chennai
60. **Sourav Maji**, Indian Institute of Technology, Bhubaneswar
61. **Debanjana Mitra**, Indian Institute of Technology Bombay, Mumbai
62. **Abhijeet Laxman Alase**, The University of Sydney, Australia
63. **Devendra Tiwari**
64. **Sujay Ashok**, Institute of Mathematical Sciences, Chennai
65. **Aditya Karnataki**, Chennai Mathematical Institute
66. **C. S. Rajan**, Ashoka University, Sonapat
67. **Aprameyo Pal**, Harish-Chandra Research Institute, Allahabad
68. **Anand Chitrao**, Harish-Chandra Research Institute, Allahabad
69. **Arvind Nair**, Tata Institute of Fundamental Research, Mumbai
70. **Chandan Dalawat**, Harish-Chandra Research Institute, Allahabad
71. **Mahan Mj**, Tata Institute of Fundamental Research, Mumbai

e. NEWS ON GRANTS, AWARDS AND FELLOWSHIPS



MANAS KULKARNI was also awarded a **CEFIPRA** (Indo-French Centre for the Promotion of Advanced Research) grant in collaboration with Gregory Schehr.



ANUPAM KUNDU received the **N. S. Satya Murthy Memorial Award** of the Indian Physics Association.



Former postdoctoral fellow SIDDHARTA MUKHERJEE received the **Best Publication of the Year Award at the National Physicists' Conclave 2024**.



Former graduate student SUGAN DURAI MURUGAN's thesis received an "**Honorable Mention**" in the Best Thesis Commendations of TIFR in physics.



ICTS graduate student ADITYA SINGH RAJPUT has been awarded the pan-TIFR **Sarojini Damodaran International Student Travel Fellowship**.



ICTS graduate student PRATEEK ANAND has been awarded the **best poster award at the annual CompFlu event** held at IIT-Hyderabad. This is the country's largest event in fluid dynamics and soft matter.

II ICTS PEOPLE

IIa FACULTY

1. DOOTIKA VATS (IIT Kanpur, Mathematics) and SRINIVAS RAGHU (Stanford University, Condensed Matter Physics) joined ICTS-TIFR as Faculty Associates.

IIb STUDENTS

GRADUATE PROGRAM

1. The following students successfully defended their thesis.
 - a. **Mukesh Kumar Singh** (*GS PhD 2019, Advisor P. Ajith*)
 - b. **Tuneer Chakraborty** (*GS PhD 2019, Advisor Suvrat Raju*)
 - c. **Priyadarshi Paul** (*GS PhD 2019, Advisor Suvrat Raju*)
 - d. **Jitendra Kethepalli** (*GS Int. PhD 2018, Advisor Anupam Kundu*)
 - e. **Manisha** (*GS PhD 2016, Advisor Vishal Vasan*)
 - f. **Basudeb Mondal** (*GS PhD 2018, Advisor Subhro Bhattacharjee*)
 - g. **Divya Jaganathan** (*GS PhD 2018, Advisor Vishal Vasan*).
 - h. **Saikat Santra** (*GS Int. PhD 2018, Advisor Anupam Kundu*)
 - i. **Mahaveer Prasad** (*GS PhD 2019, Advisor Manas Kulkarni*)
2. The following students submitted their synopsis.
 - a. **Aditya Kumar Sharma** (*Advisor P. Ajith*)
 - b. **Saurav Pandey** (*Advisor Abhishek Dhar*)
 - c. **Anup Kumar** (*Advisor Rama Govindarajan*)
3. Priyadharshini V (*GS Int. PhD 2022*) registered for PhD in November 2024 via Datatnet 2.0
4. An introductory YourDOST session was conducted on 22 November 2024 for all ICTS members. The session focused on key updates introduced to make the platform more accessible, user-friendly, and responsive to the concerns.

POSTDOCTORAL PROGRAM

1. The following candidates joined ICTS as postdoctoral fellows from the Fall 2024 cycle:
 - a. **Dylan James Reynolds**
 - b. **Indrajit Sau**
 - c. **Souvik Kundu**
 - d. **Krushna Chandra Sahu**
 - e. **Ubaid Tantaray**
2. Following offers were made from the Summer 2024 hiring cycle:

Name	Research Group	Current Affiliation	Current Designation
Anu Dhochak	Mathematics	Shiv Nadar University, Delhi NCR	Research Scholar
Rohit Kumar Sharma	Mathematics	Indian Institute of Technology Kharagpur	Research Scholar
Suruj Jyoti Kalita	Fluid Dynamics and Turbulence	Institute for Plasma Research, HBNI, Gandhinagar	Research Scholar
Souvik Banerjee	String Theory and Quantum Gravity	University of Würzburg, Germany	Lecturer

3. Applications are invited for the Fall 2025 hiring cycle: <https://www.icts.res.in/academic/postdoctoral-fellowships>
4. Subsequent affiliations of postdocs who finished their tenure at ICTS-TIFR between Sep- Dec 2024.
 - a. Vaishak Prasad joined as a postdoctoral fellow at The Pennsylvania State University, USA
 - b. Anantadulal Paul joined as a postdoctoral fellow at TIFR, Mumbai
 - c. Anupam A H joined as a postdoctoral fellow at the Harish-Chandra Research Institute, Allahabad
 - d. Akash Kumar Mishra joined as a postdoctoral fellow at the Saha Institute of Nuclear Physics, Kolkata

VISITING STUDENTS PROGRAM

Applications are invited for the ICTS S.N. Bhatt Memorial Excellence Fellowship Program 2025: <https://www.icts.res.in/academic/summer-research-program>

III

OUTREACH

PUBLIC LECTURE

On Rational and Irrational Numbers, Strings and Harmony

Uri Omn (Mathematical Sciences Institute, ANU) with Shubhadeep Chakraborty (Guitar), Michelle Simons (Cello) and Sayantan Mandal (Piano) | 6 December 2024

KAAPI WITH KURIOSITY

Numbers: Are They Normal?

Malabika Pramanik (University of British Columbia, Canada) | 19 December 2024

Understanding Animal Societies

T.N.C. Vidya (JNCASR, Bengaluru) | 3 November 2024

Dusty Flows in Nature (and Why Clouds Don't Fall from the Sky)

Rama Govindarajan (ICTS-TIFR, Bengaluru) | 19 October 2024

The ABC Mysteries

Minhyong Kim (International Centre for Mathematical Sciences, Edinburgh) | 8 September 2024

EINSTEIN LECTURES

The Six Faces of Subrahmanyan Chandrasekhar

Rajaram Nityananda (ICTS-TIFR, Bengaluru) | 29 October 2024

MATHS CIRCLE INDIA

ICTS conducted eight online Maths Circle India sessions during September-December 2024.

Session 69

Conducted by: Ashwin Guha | **Interactive session:** 20 December 2024

Session 68

Conducted by: Shreyas Mallya, Kriti Arora, Susobhan Chattopadhyay, Priyanka Goswami, Ashwin Guha | **Interactive session:** 6 December 2024

Session 67

Conducted by: Shreyas Mallya, Kriti Arora, Susobhan Chattopadhyay, Priyanka Goswami, Ashwin Guha | **Interactive session:** 22 November 2024

Session 66

Conducted by: Shreyas Mallya, Kriti Arora, Susobhan Chattopadhyay, Priyanka Goswami, Ashwin Guha | **Interactive session:** 8 November 2024

Session 65

Conducted by: Rashmita Hore, Amartya Muthal, Indranil Bhattacharya, Gaurav Aggarwal, Radhika Gupta | **Interactive session:** 18 October 2024

Session 64

Conducted by: Rashmita Hore, Amartya Muthal, Indranil Bhattacharya, Gaurav Aggarwal, Radhika Gupta | **Interactive session:** 4 October 2024

Session 63

Conducted by: Rashmita Hore, Amartya Muthal, Indranil Bhattacharya, Gaurav Aggarwal, Radhika Gupta | **Interactive session:** 20 September 2024

Session 62

Conducted by: Rashmita Hore, Amartya Muthal, Indranil Bhattacharya, Gaurav Aggarwal, Radhika Gupta | **Interactive session:** 6 September 2024

ICTS-RRI MATHS CIRCLE

During September-December 2024, four maths circle sessions were held at the Raman Research Institute, Bengaluru.

Session 37

Conducted by: Mikhail Mironov | **Interactive session:** 23 November 2024

Session 36

Conducted by: Mikhail Mironov | **Interactive session:** 9 November 2024

Session 35

Conducted by: Ashwin Guha | **Interactive session:** 28 September 2024,

Session 34

Conducted by: Ashwin Guha | **Interactive session:** 14 September 2024

MATHSPARK SESSION

Tales of Pyramids and Spheres: Speaking Volumes of Cavalieri

Conducted by: Kaushik Basu (University of California, Berkeley) | **Interactive Session:** 21 December 2024

ICTS TEACHERS TRAINING

A science and mathematics teachers' training workshop, a one-day, in-person workshop designed for science and mathematics educators teaching classes 8 to 10 was held on 6 September 2024. The program featured sessions by educator Sita Ayyar and H.R. Madhusudan (JN Planetarium, Bengaluru) focusing on reflective teaching practices, innovative pedagogical strategies, and interactive hands-on activities.

ICTS EXHIBITS AT SCI560, SCIENCE GALLERY BENGALURU

As part of the Sci560 exhibition organized by Science Gallery from 24 August 2024 to 28 February 2025, ICTS-TIFR has three unique exhibits that bridge the gap between cutting-edge scientific research and interactive public engagement. These exhibits showcase the synergy between theoretical physics, experimental analogies, and natural phenomena, inviting visitors to explore complex concepts through visually compelling and hands-on experiences.

OTHER SPECIAL EVENTS

Beyond Boundaries: A Day of Interdisciplinary Exploration

This event was open to the public, featuring programs specifically curated for high school and undergraduate students. The fascinating patterns of nature and mathematics were explored while celebrating the birth anniversary of Srinivasa Ramanujan. Participants included JBNSTS students from Kolkata and students from various colleges in Bengaluru. The event concluded with a creative and interactive session blending science and origami to tackle "The Ein-stein Problem."

Speakers: Brato Chakrabarti (ICTS-TIFR), Samriddhi Sankar Ray (ICTS-TIFR), Deepak Dhar (ICTS-TIFR), Joseph Samuel (ICTS-TIFR), Iqbal Ahmed (ICTS-TIFR) and Disha Kuzhively (ICTS-TIFR) | 19 December 2024

ICTS BLOG

New [blog post](#) on how 'intelligence' emerges from the statistical physics of networks.

ANNEXURE - A

The following are the details of seminars and colloquia during the period September-December 2024:

Active Reservoirs: Nonequilibrium Forces and Transport | Ion Santra (University of Gottingen, Germany) | 23 December 2024

Gravitational Wave Astronomy of Merging Compact Binaries: Effect of Subdominant Modes of Gravitational Radiation | Mukesh Kumar Singh (ICTS-TIFR, Bengaluru) | 17 December 2024

Long-lived Sources of Gravitational Waves: (mini) Extreme Mass Ratio Inspirals, Inspiring Primordial Black Holes and Neutron Stars | Andrew Miller (National Institute for Subatomic Physics (NIKHEF), Netherlands) | 18 December 2024

Quantum Field Theory as a Set of Coupled ODEs | Manuel Loparco (École Polytechnique Fédérale de Lausanne, Switzerland) | 9 December 2024

Disentangling Emergent and Recursive Turbulence Coherent Structures via Generalized Correlation-decomposition | Siddhartha Mukherjee (IIT Kanpur) | 6 December 2024

Strong Lensing of Gravitational Waves: A New Probe of Cosmology and the Nature of Dark Matter | Souvik Jana (ICTS-TIFR, Bengaluru) | 5 December 2024

Semiclassical Analysis of Finite Cut-off JT Gravity on a Disk | Soumyadeep Chaudhuri (Université Libre de Bruxelles, Belgium) | 4 December 2024

Invariants and Correlators in 4d SCFTs | Aditya Jain (Ashoka University, Sonapat) | 29 November 2024

Inclusions in Momentum Conserving Active Fluids | Thibaut Arnoulx de Pirey (IISc, Bengaluru) | 29 November 2024

Holography of Information in de Sitter Quantum Gravity | Tuncer Chakraborty (ICTS-TIFR, Bengaluru) | 29 November 2024

The Hilbert Space of de Sitter Quantum Gravity | Priyadarshi Paul (ICTS-TIFR, Bengaluru) | 28 November 2024

Progress on High-Energy String Collisions | Sebastian Mizera (Institute for Advanced Study, USA) | 28 November 2024

D-commuting SYK Model: Building Quantum Chaos from Integrable Blocks | Cheng Peng (University of Chinese Academy of Sciences, China) | 27 November 2024

Mitigating Biases in Decision-Making Systems: a Control Systems Perspective | Giulia De Pasquale (ETH Zürich, Switzerland) | 26 November 2024

Equilibrium and Non-equilibrium Properties of 1d Interacting Systems | Jitendra Kethepalli (ICTS-TIFR, Bengaluru) | 26 November 2024

Thermalization and Hydrodynamics in Integrable Systems | Saurav Pandey (ICTS-TIFR, Bengaluru) | 22 November 2024

Welcome a Better You with YourDOST | Chetna Bisht (YourDOST) | 22 November 2024

From Topological to Non-Topological Conformal Defects | Yifan Wang (New York University, USA) | 21 November 2024

Fast and Efficient Bayesian Method to Search for Strongly Lensed Gravitational Waves | Ankur Barsode (ICTS-TIFR, Bengaluru) | 21 November 2024

Black Hole Cohomologies in N=4 Yang Mills Theory | Eunwoo Lee (Tata Institute of Fundamental Research, Mumbai) | 20 November 2024

Chaos and Fortuity of Holographic BPS States | Yiming Chen (Stanford University, USA) | 14 November 2024

Relating Maximal Conformal Supergravities in 6d and 4d | Bindusar Sahoo (IISER, Thiruvananthapuram) | 13 November 2024

Decoding and Shaping Active Self-organization in Living Materials | Shreyas Gokhale (Massachusetts Institute of Technology, USA) | 13 November 2024

Efficient Large Language Model Inference with HiRE and Tandem Transformers | Praneeth Netrapalli (Google Research India, Bengaluru) | 8 November 2024

Charges in General Relativity and Black Hole Thermodynamics | M. M. Sheikh-Jabbari (Institute for Research in Fundamental Sciences, Iran) | 7 November 2024

Constraining the Nature of Early Stars and Supernovae in our Galaxy with Very Metal-poor Stars | Projjwal Banerjee (Indian Institute of Technology, Palakkad) | 7 November 2024

Bootstrapping String-like Amplitudes using Entanglement Minimization and Machine Learning | Faizan Bhat (Indian Institute of Science, Bengaluru) | 6 November 2024

Shallow-water Wave Models and Ocean-depth Measurement | Manisha (ICTS-TIFR, Bengaluru) | 5 November 2024

Research in Germany | Manjula Mundakana (German Consulate, Bengaluru) | 4 November 2024

Towards General Relativistic Boltzmann Transport for Binary Neutron Star Mergers | Maitraya Bhattacharyya (Pennsylvania State University, USA) | 1 November 2024

Is the Monsoon a Dynamical or Thermodynamical System? | Chetankumar Adappa Jalihal (Max Planck Institute for Meteorology, Hamburg, Germany) | 30 October 2024

Optimal Transport for Stationary Point Processes | Martin Huesmann (University of Münster, Germany) | 29 October 2024

The Thin Shell-line Defect Correspondence | Jeevan Chandra (Cornell University, USA) | 23 October 2024

Building AI-Driven Self and Collective Awareness in Collaborative IoT Networks | Divya Thekke Kanapram (Intangible Limited, UK) | 22 October 2024

Quasinormal Ringdown in the SYK Model | Matthew Dodelson (Harvard University, USA) | 17 October 2024

Bootstrapping the Physics at Finite Temperature | Minjae Cho (The University of Chicago, USA) | 16 October 2024

Prospects of Observing Gravitational Lensing of Continuous Gravitational Waves | Aditya Kumar Sharma (ICTS-TIFR, Bengaluru) | 16 October 2024

Design Principles of Complex Cellular Decision-making Networks in Cancer | Mohit Kumar Jolly (Indian Institute of Science, Bengaluru) | 14 October 2024

On Lattice Axial Symmetries | Shu-Heng Shao (Massachusetts Institute of Technology, USA) | 10 October 2024

A String Theory for Two-Dimensional Yang-Mills Theory | Suman Kundu (Weizmann Institute of Science, Israel) | 9 October 2024

Channel Flow Stability: Influence of Dust Particles and Geometry | Anup Kumar (ICTS-TIFR, Bengaluru) | 9 October 2024

Energy Extraction from the Black Hole by a Highly Magnetized Thin Disk: Insights from 3D GRMHD Simulations | Prasun Dhang (University of Colorado Boulder, USA) | 8 October 2024

Review of Quantization in 3D Gravity (part 2) | Priyadarshi Paul (ICTS-TIFR, Bengaluru) | 7 October 2024

The Life and Work of Satyendra Nath Bose | Sreerup Raychaudhuri (Banaras Hindu University, Varanasi) | 4 October 2024

Topological Recursion for Hyperbolic String Field Theory | Atakan Hilmi Firat (University of California, Davis, USA) | 3 October 2024

Interplay of Microscopic and Emergent Symmetries in a Spin-Orbit Coupled Dirac Semi-Metal | Basudeb Mondal (ICTS-TIFR, Bengaluru) | 1 October 2024

AdS String Amplitudes from Single-valuedness | Tobias Hansen (Durham University, UK) | 26 September 2024

On Type II String Theory on AdS₃ X S³ X T⁴ and its CFT Dual | Ofer Aharony (Weizmann Institute of Science, Israel) | 25 September 2024

Empirical Optimal Transport: Convergence Rates and Lower Complexity Adaptation | Shayan Hundrieser (Georg-August University of Goettingen, Germany) | 24 September 2024

The Friendship Paradox for Social Networks | Frank den Hollander (Leiden University, Netherlands) | 23 September 2024

The SIR Epidemic on a Dynamic Erdős-Rényi Random Graph | Adrian Roellin (National University of Singapore, Singapore) | 23 September 2024

Flows and Flow Transitions in an Unsupported Epithelium | Chaithanya K. V. S (University of Dundee, UK) | 19 September 2024

Dark Matter Through a Different (Micro) Lens | Nirmal Raj (IISc, Bengaluru) | 19 September 2024

Review of Quantization in 3D Gravity | Priyadarshi Paul (ICTS-TIFR, Bengaluru) | 18 September 2024

Super-universality | Pradeep Kumar Mohanty (IISER, Kolkata) | 17 September 2024

Forces and Flows in Soft Systems | Bhargav Rallabandi (University of California, Riverside, USA) | 13 September 2024

On Growth and Form and Temperature: Developmental Robustness under Changing Temperature | Vikas Trivedi (European Molecular Biology Laboratory, Barcelona, Spain) | 13 September 2024

Investigating Physics beyond General Relativity and Kerr Paradigm | Rajes Ghosh (ICTS-TIFR, Bengaluru) | 12 September 2024

Topological Structures of 'Featureless' Phases: Unnecessary Criticality, Charge Pumps and Boundary Modes | Abhishodh Prakash (University of Oxford, UK) | 11 September 2024

Investigation of Subcritical Turbulence Through First-Principle Methods | Suruj Jyoti Kalita (Institute for Plasma Research, HBNI, Gandhinagar) | 11 September 2024

Magnon Transmission Across $v = 1$ - $1/1$ Mono-layer Graphene Junction as a Probe of Electronic Structure | Suman Jyoti De (McGill University, Canada) | 11 September 2024

Quantum Information Scrambling with Higher Form Symmetry | Sourav Maji (IIT Bhubaneswar, Odisha) | 10 September 2024

Who Owns Mathematics? | Minhyong Kim (University of Edinburgh, UK) | 6 September 2024

Exploring Spatio-temporal Dynamics of Fluid Flows and Earth's Climate from a Complex Networks Perspective | Gaurav Chopra (Indian Institute of Technology Madras, Chennai) | 6 September 2024

Topological Systems for Quantum Technologies | Abhijeet Laxman Alase (University of Sydney, Australia) | 4 September 2024

Distribution of Local Observables in a Current Carrying Steady State in a Boundary Driven XXZ Model | Sreejith G.J. (Indian Institute of Science Education and Research, Pune) | 3 September 2024

COLLOQUIA

The Machine Learning Contributions Behind the 2024 Physics Nobel Prize | Hugo Touchette (Stellenbosch University, South Africa) | 24 October 2024

Integrable Combinatorics | Philippe Di Francesco (Institut de Physique Theorique, Universite Paris-Saclay and University of Illinois at Urbana-Champaign) | 22 October 2024

What is the Moon Made of? | Shyama Narendranath (Department of Space, Indian Space Research Organisation (ISRO), Bengaluru) | 17 September 2024

Fractons: A Novel Paradigm for Broken Ergodicity | Abhishodh Prakash (University of Oxford, UK) | 10 September 2024

ANNEXURE - B

PAPERS PUBLISHED - 66

In Journals - 42

1. *Conserved Densities of Hard Rods: Microscopic to Hydrodynamic Solutions*, **Mrinal Jyoti Powdel, Anupam Kundu**. J. Stat. Mechanics: Theory & Experiment 2024 (12) 123205 (2024)
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