ACTIVITY REPORT

(May-August 2022)

ICTS International Centre for Theoretical Sciences
TATA INSTITUTE OF FUNDAMENTAL RESEARCH

I ICTS ACTIVITIES

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

Programs/Discussion Meetings held: 12

Academic visitors to ICTS-TIFR: 58

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

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

Papers published: 28

arXiv submissions: 29

ICTS academic activities, particularly programs and discussion meetings, are now being held in person, online as well as in the hybrid format.

Ia. PROGRAMS

Nonperturbative and Numerical Approaches to Quantum Gravity, String Theory and Holography (Hybrid)
Organizers: David Berenstein, Simon Catterall, Masanori Hanada, Anosh Joseph, Jun Nishimura, David Schaich, Toby Wiseman | 22 August-2 September 2022

Elliptic Curves and the Special Values of L-Functions (Hybrid)
Organizers: Ashay Burungale, Haruzo Hida, Somnath Jha, Ye Tian | 8-19 August 2022

First-Passage Percolation and Related Models (Hybrid)
Organizers: Riddhipratim Basu, Jack Hanson, Arjun Krishnan |11-29 July 2022

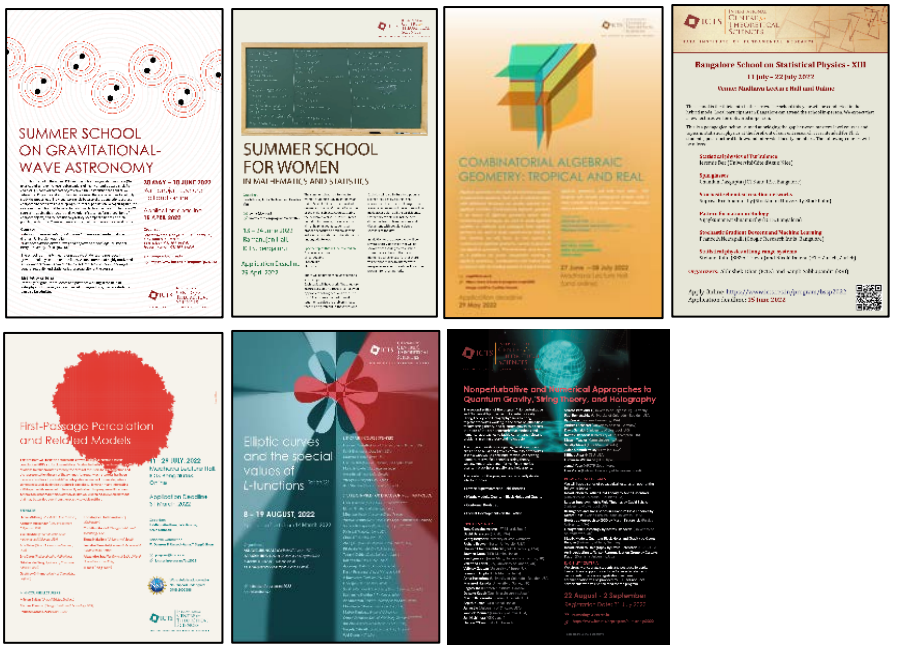
Bangalore School on Statistical Physics - XIII (Hybrid)
Organizers: Abhishek Dhar, Sanjib Sabhapandit | 11-22 July 2022

Combinatorial Algebraic Geometry: Tropical and Real (Hybrid)
Organizers: Arvind Ayyer, Madhusudan Manjunath, Pranav Pandit |27 June-8 July 2022

Summer School for Women in Mathematics and Statistics
Organizers: Siva Athreya, Anita Naolekar, Senthil Raani K.S, Dootika Vats |13-24 June 2022

ICTS Summer School on Gravitational-Wave Astronomy (Hybrid)
Organizers: Parameswaran Ajith, K. G. Arun, Bala R. Iyer, Prayush Kumar | 30 May-10 June 2022

Physics with Trapped Atoms, Molecules and Ions (Hybrid)
Organizers: Bimalendu Deb, Sourav Dutta, Saikat Ghosh | 9-13 May 2022



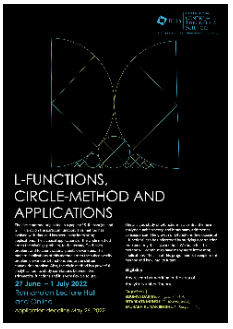
Ib. DISCUSSION MEETINGS

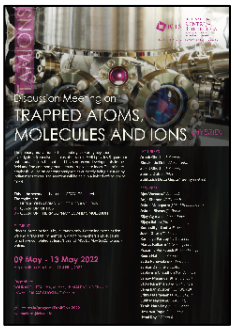
L-functions, Circle-Method and Applications (Hybrid)
Organizers: Soumya Das, Ritabrata Munshi, Saurabh Kumar Singh | 27 June-1 July 2022

Stochastic Thermodynamics: Recent Developments (Online)
Organizers: Shamik Gupta, Sourabh Lahiri, Arnab Saha | 14-17 June 2022

LIGO-Virgo Open Data Workshop
Organizers: Parameswaran Ajith, Soummyadip Basak, Srashti Goyal, Aditya Vijaykumar | 25-26 May 2022

Laboratory for Interdisciplinary Breakthrough Science (Hybrid)
Organizer: Shravan Hanasoge | 25 May 2022





Ic. LECTURE SERIES

DD KOSAMBI LECTURES
Ancient Mural Paintings of India
Benoy K Behl (Adjunct Professor at National Institute of Advanced Studies) | 11 August 2022

ICTS-INFOSYS STRING THEORY LECTURES
Supersymmetric Black Holes, the Superconformal Index, and Phases of AdS/CFT
Sameer Murthy (King's College, London, UK) | 2-5 August 2022

TMC DISTINGUISHED LECTURES
On the Tensor Product of Representations of Classical Groups
Speaker: Dipendra Prasad (IIT, Bombay) | **Video release**:3 August 2022 | **Interactive session**: 3 August 2022

Asymmetry in Dynamics
Speaker: Amie Wilkinson (University of Chicago) | **Video release**: 21 June 2022 | **Interactive session**: 14 July 2022

Id. VISITS OF SCIENTISTS

The following researchers visited ICTS during May-August 2022.

Md. Abhishek (Harish-Chandra Research Institute, Allahabad)
Isha Anantpurkar (University of California Santa Barbara, USA)
Javier Roulet (KITP, Santa Barbara, USA)
Tejaswi Venumadhav Nerella (University of California Santa Barbara, USA)
Bijay Kumar Agarwalla (IISER Pune)
Andrew David Fernie Boyd (University of Edinburgh, UK)
Arun Paramekanti (University of Toronto, Canada)
Moumita Patra (National Institute of Science Education and Research (NISER), Bhubaneswar)
Sumithra Reddy Yerasi (University Côte d'Azur, France)
Nirnoy Basak (Harish-Chandra Research Institute, Allahabad)
Ashwin Girish
Faruk Abdulla (Harish-Chandra Research Institute, Allahabad)
Vinutha H A (Institute for Soft Matter Synthesis and Metrology, Georgetown University, USA)
Shasvath Kapadia (IUCAA, Pune)
Rahul Dandekar (Institut de Physique Théorique, CEA, CNRS, France)
Madhumita Saha (IISER, Pune)
Sameer Murthy (King's College, London, UK)
Kusum Dhochak (Indian Institute of Technology, Palakkad)
Vidyanand Nanjundiah (Centre for Human Genetics, Bangalore)
Sreedev M (IISER, Pune)
T.R. Ramadas (Chennai Mathematical Institute, Chennai)
Narayanan Menon (University of Massachusetts, Amherst, USA)
Poonam Mehta (Jawaharlal Nehru University, New Delhi)
Sourin Das (IISER, Kolkata)
Aikya Banerjee (IISER, Kolkata)
Julian Klamser (ESPCI Paris, PSL, France)
Tridib Sadhu (TIFR, Mumbai)
Sahil Lalsodagar (IISER, Berhampur)
Jeremie Bec (MINES ParisTech, PSL Research University, CNRS, CEMEF, Sophia-Antipolis, France)
Chaitanya Murthy (Stanford University, USA)
Viraja Giriraj Dodderi (IISER, Tirupati)
Jason R. Picardo (Indian Institute of Technology, Bombay)
Shailesh Chandrasekharan (Duke University, USA)
Amit Apte (IISER Pune)
Blesil T K (Centre for Studies in Science, Technology and Innovation Policy, Central University Gujarat)
Aritra Kundu (Campus Limpertsberg, Université du Luxembourg)
Chitraang Murdia (University of California, Berkeley, USA)
Sayantani Bhattacharyya (NISER, Bhubaneswar)
Tousif Islam (University of Massachusetts (UMass) Dartmouth, USA)
Utkarsh Agrawal (University of Massachusetts, Amherst, USA)
Shiroman Prakash (Dayalbagh Educational Institute, Agra)

Krishnakumar Sabapathy (Xanadu Quantum Technologies, Toronto, Canada)
Shirshendu Ganguly (University of California, Berkeley, USA)
Krishnendu Naderi Varium (Max Planck Institute for Gravitational Physics, Hannover, Germany)
Jaikumar Radhakrishnan (TIFR, Mumbai)
Semanti Dutta (Institute of Mathematical Sciences, Chennai)
Debsoumya Chakraborti (Institute for Basic Science (IBS), South Korea
Debasish Chaudhuri (Institute of Physics, Bhubaneswar)
Debanjana Mitra (Indian Institute of Technology Bombay, Mumbai)
M. Sivakumar (University of Hyderabad, Hyderabad)
Sriram Ganeshan (City College of New York, USA)
T.N. Venkataramana (TIFR, Mumbai)
Hari Pulakkat (Science Journalist)
Indu Kalpa Dihingi (IIT Indore, Indore)
Ajit Kumar Mehta (Max Planck Institute for Gravitational Physics (Albert Einstein Institute), Germany)
Priyanka (University of Illinois, Urbana-Champaign, USA)
Sayantan Choudhury (School of Physical Sciences, Institute of Physical Science, Bhubaneswar)
Shailesh Lal (University of Porto)

e. NEWS ON GRANTS, AWARDS AND FELLOWSHIPS

AJITH PARAMESWARAN was selected as **member of the National Academy of Sciences, India (NASI)**. Ajith's research spans different aspects of gravitational-wave astronomy.

SUBHRO BHATTACHARJEE was selected as **member of the National Academy of Sciences, India (NASI)**. Subhro's research interests lie in quantum many-body physics.

RAMA GOVINDARAJAN's publication (in collaboration with Sumithra Reddy Yerasi and Dario Vincenzi of the Université Côte d'Azur, CNRS), titled '*Spirographic Motion in a Vortex'* was highlighted as **Editor's Suggestion in Physics Review Fluids**.

SUVRAT RAJU was awarded the 10th **Nishina Asia Award 2022**. The prestigious Nishina Asia Award is given every year by the Nishina Memorial Foundation to recognize young Asian scientists for their outstanding achievements in the fields of basic physics.

SAMRIDDHI SANKAR RAY, together with ICTS associates Jason Picardo, Jeremie Bec and Dario Vincenzi, have been awarded a **CEFIPRA (Indo-French) grant** for their joint research.

STHITADHI ROY'S publication (in collaboration with Max McGinley and S.A. Parameswaran) titled, *Absolutely Stable Spatiotemporal Order in Noisy Quantum Systems,* was highlighted as **Editors' Suggestion in the journal Physical Review Letters.**

ICTS graduate student JUNAID MAJEED BHAT was awarded the inaugural pan-TIFR "Prof. **S. Naranan Memorial Research Award**." Bhat was selected for this highly competitive award "for his outstanding contribution in the physics of transport in linear chain systems for varied fields of research."

ICTS graduate student ADITYA VIJAYKUMAR was selected for the **Fulbright-Nehru Doctoral Research Fellowship**. The prestigious fellowship, given by the United States-India Educational Foundation (USIEF), will enable Aditya to work for seven months with astrophysicist Daniel Holz at the University of Chicago.

II ICTS PEOPLE

IIa FACULTY

1. **Jaikumar Radhakrishnan** (TIFR, Mumbai) has joined the ICTS-TIFR faculty on deputation.
2. **Siva Athreya** will join the ICTS-TIFR in Nov. 2022 as a senior professor of mathematics. He was previously with ISI, Bangalore.
3. **Ganapathy Murthy** (University of Kentucky, USA) and **Mahesh M Bandi** (Okinawa Institute of Science and Technology (OIST), Japan) have joined ICTS-TIFR as new Faculty Associates.
4. **Rajaram Nityananda** has joined ICTS-TIFR Astrophysical Relativity faculty as Simons Visiting Professor.

IIb STUDENTS

GRADUATE PROGRAM

1. The Summer semester 2022 started from 15 May 2022 and graduate students have registered for various summer projects.
2. Twenty students joined on 1 August 2022 as part of PhD/ IPhD program in Physics and 3 students joined on 1 August 2022 as part of CAM-ICTS Joint PhD Program in Mathematics.
3. Orientation session for new students was held on 3 August 2022. ICTS members and visitors attended the orientation session.
4. Fall semester 2022 for the CAM-ICTS Joint PhD Program in Mathematics and PhD/ IPhD program began on 1 August 2022. Classes are being conducted in hybrid mode. All course related procedures have been moved to moodle platform. This semester ICTS is conducting 12 courses (including elective and core courses). Students from other institutions can also enroll for ICTS courses. Please refer to the website for more details: https://courses.icts.res.in/course/index.php?categoryid=8
5. Apart from the ICTS courses, students have registered for courses from IISc, TIFR Colaba, and CAM TIFR.
6. Following students registered for their PhD via new datanet based module, Datanet 2.0:
    a. **2019 Integrated PhD batch**: Aditya Singh Rajput, Ankush Chaubey, Harshit Joshi.
    b. **2020 PhD batch**: Jigyasa Watwani, Sahil Kumar Singh, Umesh Kumar.
7. Final year students:
    a. Rahul Kumar Singh, PhD student of Samriddhi Sankar Ray, defended his thesis on 2 June 2022.
    b. Final year students who submitted their thesis: Akhil Sivakumar (Advisor: R Loganayagam), Joydeep Chakravarty (Advisor: Suvrat Raju), Santhosh Ganapa (Advisor: Abhishek Dhar), Arnab Seth (Advisor: Subhro Bhattacharjee), Prashant Singh (Advisor: Anupam Kundu)

c. The final year students (2016 Integrated PhD and 2017 PhD batch) have been given one-year extensions with full fellowship due to the COVID situation.

8. Graduate Studies Admissions 2022:
   a. Online interviews for the CAM-ICTS Joint PhD Program 2021 were conducted on 2-3 May via TIFR GS, GATE & CSIR-NET stream. Eight offers were made, out of which following three students accepted:

Name	Current Affiliation
Priyadarshini V	Pondicherry University
Vishwanathan S	Kerala School of Mathematics
Aditya Laxmikant Thorat	IISER, Bhopal

   b. Offline interviews for the Physical Sciences Graduate Program were conducted via TIFR GS stream on 25-26 May while online interview was held on 31 May 2022. Thirty-three candidates were interviewed based on the TIFR GS cutoff and screening of the applications. Fourteen offers were made, of which eight were accepted:

Name	Current Affiliation
Harsh Nigam	IIT Kanpur
Priyangshu Goswami	HRI, Allahabad
Koustav Narayan Maity	IISER, Berhampur
Rishabh Kaushik	IIT Kanpur
Santhiya PS	Kalasalingam Academy of Research and Education
Atharva Naik	St Xavier's College, Mumbai
Abhinav Yadav	Benaras Hindu University, Varanasi
Aiswarya NS	Sri Venkateswara College, Delhi

   c. Offline interviews for the Physical Sciences Graduate Program 2022 via GATE/ JEST/ NET stream were conducted on 15 July 2022 while online interviews were held on 14-15 July 2022. Thirty-six candidates were interviewed based on the test score and screening score of applications. Thirteen offers were made, of which twelve were accepted:

Name	Current Affiliation
Ritwick Ghosh	IISER Pune
Alorika Kar	Presidency University
Chandranathan Anandavijayan	NISER, Bhubaneswar
Manish Jain	NIT Silchar
Swapan Limbu	Digboi College
Anikat Kankaria	Calcutta University
Neha Sharma	Miranda House, Delhi University
Priyanka Sinha	Vidyasagar University
Sunit Banerjee	IISc, Bengaluru
Kunal Kumar	Benaras Hindu University, Varanasi
Bibek Saha	University of Calcutta
Devanshi Parashar	Manipal Institute of Technology

d. Early offer for PhD/ IPhD program: Students selected for summer research program were provided the opportunity of early offer for PhD/ IPhD program in Physics 2023. Four students were shortlisted for written exam and interview based on their performance in their project and presentation, and recommendation letters. The following two students were made the offer.

Name	Faculty Mentor	Current Affiliation
Ratul Thakur	Sthitadhi Roy	IIT Roorkee
Debmalya Sarkar	Rajesh Gopakumar	IIT Kanpur

9. Global Young Scientists Summit 2023: Following students were nominated for the 2023 summit:

Name	Designation	Mode of Participation
Sugan Murugan	Research Scholar	Online
Jigyasa Watwani	Research Scholar	On-site
Siddhartha Mukherjee	Post-Doctoral Fellow	Online

Junaid Bhat	Research Scholar	Online
Mukesh Singh	Research Scholar	Online
Anup Kumar	Research Scholar	Online
Saurav Pandey	Research Scholar	Online
Ankush Chaubey	Research Scholar	Online
Saumav Kapoor	Research Scholar	On-site

POSTDOCTORAL PROGRAM

1. Postdoctoral application for the summer cycle is currently in the screening stage: https://www.icts.res.in/academic/postdoctoral-fellowships

VISITING STUDENTS PROGRAM

1. The applications were invited for the ICTS Long Term Visiting Students Program 2022. https://www.icts.res.in/academic/long-term-visiting-student-program.
   Following students were selected and have joined the program:

Name	Current Affiliation	Faculty Mentor
Kritika Khanwal	Delhi University	Sthitadhi Roy
Seemant Mishra	IISER Pune	Abhishek Dhar and Anupam Kundu
Saumyakanta Mishra	JNCASR, Bengaluru	Rama Govindarajan
Krithin G	Indian Institute of Information Technology Design and Manufacturing, Kancheepuram	Jim Thomas
Madhav Sirohi	TMU, Moradabad	Jim Thomas
Moitrish Majumdar	BITS, Pilani	Vishal Vasan
Ankush GK	BITS, Pilani	Vijaykumar Krishnamurthy
Daniel Eduardo Galviz Blanco (to join in January 2023)	University of Bonn	Rajesh Gopakumar
Kartikey Sharma	BITS Pilani	Prayush Kumar
Himanshu Bimal	NISER	Rukmini Dey

SUMMER RESEARCH PROGRAM

The summer research program 2022 was conducted between 23 May 2022 to 15 July 2022. Sixteen students joined the eight-week long program. https://www.icts.res.in/academic/summer-research-program.

Name	Current Affiliation	Faculty Mentor
Ratul Thakur	IIT Roorkee	Sthitadhi Roy
Tejas Oke	Chennai Mathematical Institute	Riddhipratim Basu and Anirban Basak
Sanchayan Bhowal	Indian Statistical Institute, Bengaluru	Riddhipratim Basu and Anirban Basak
Arka Das	IISc, Bengaluru	Rukmini Dey
Maria Rose	St Xavier's College for Women, Ernakulam	Vijay Kumar Krishnamurthy
Harshini Sangle	Azim Premji University	Vijay Kumar Krishnamurthy
Debmalya Sarkar	IIT Kanpur	Rajesh Gopakumar
Ashmita Panda	NISER Bhubaneswar	Suvrat Raju
Adepu Kumar	IISc, Bengaluru	Suvrat Raju
Vaishnavi Kodukula	St Francis College for Women, Osmania University	Ashoke Sen
Chandranathan Anandvijayan	NISER Bhubaneswar	Pallavi Bhat
Sneha Pradhan	University of Calcutta	Pallavi Bhat
Kaustubh Gupta	IISER Kolkata	Ajith Parameswaran and Prayush Kumar
Aruna	IIT Mandi	Ajith Parameswaran and Prayush Kumar
Adarsh Raghu	IISER Kolkata	Abhishek Dhar
Ravi Kumar	IIT, BHU, Varanasi	Subhro Bhattacharjee

SUMMER COURSE

The following summer courses were conducted this year.

1. Curves & Surfaces: Physics & Applications: https://www.icts.res.in/lectures/sc-2022

The course was conducted in hybrid mode. 297 students registered for the course, of which 32 were selected for classroom participation. Certificates were issued to participants on successful completion of the course.

2. Introduction to Indian Monsoon Variability, Predictability, and Teleconnections: https://www.icts.res.in/lectures/sc2022bng

This course was offered online.

III OUTREACH

KAAPI WITH KURIOSITY

Simulations: Why, What and How?
Parthanil Roy (ISI, Bengaluru) | 28 August 2022 | JN Tata Auditorium

Novel Phases of Matter Near Absolute Zero Temperature
Sanjukta Roy (Raman Research Institute, Bengaluru) | 31 July 2022 | JN Tata Auditorium

Greening of Bangalore
Vijay Thiruvady (Bangalore Environment Trust) | 26 June 2022 | JN Tata Auditorium

Coping with Salt and Drought: How Crop Plants Survive
M.K. Mathew (NCBS, Bengaluru) | 8 May 2022 | JN Tata Auditorium

VIGYAN ADDA

Branching Random Walks: Two Conjectures and a Theorem
Parthanil Roy (ISI, Bengaluru) | 5 June 2022 | Online talk

MATHS CIRCLE INDIA

ICTS is leading a pan-TIFR effort to seed Maths Circles for talented middle school students across the country. To establish proof of concept, ICTS has conducted 8 online Maths Circle India sessions during May-August 2022.

Session 20
Conducted by: Prahlad Vaidyanathan, Kartick Adhikary, Rahul Garg, Sannidhi A. S., Monika, Pankaj Kapdi, Ajit Bhand | **Interactive Session**: 19 August 2022

Session 19
Conducted by: Prahlad Vaidyanathan, Kartick Adhikary, Rahul Garg, Sannidhi A. S., Monika, Pankaj Kapdi, Ajit Bhand | **Interactive Session:** 5 August 2022

Session 18
Conducted by: Prahlad Vaidyanathan, Kartick Adhikary, Rahul Garg, Sannidhi A. S., Monika, Pankaj Kapdi, Ajit Bhand | **Interactive Session:** 22 July 2022

Session 17
Conducted by: Prahlad Vaidyanathan, Kartick Adhikary, Rahul Garg, Sannidhi A. S., Monika, Pankaj Kapdi, Ajit Bhand | **Interactive Session:** 8 July 2022

Session 16
Conducted by: Eeshan Modak, Varun Narayanan, Varun Ramanathan, Kedar Damle, Piyush Srivastava |**Interactive Session:** 24 June 2022

Session 15
Conducted by: Sushant Vijayan, Neha, Ashutosh Shankar, Sayantan Chakraborty, Piyush Srivastava | **Interactive Session:** 3 June 2022

Session 14
Conducted by: Shubhada Agrawal, Neha, Pranshu Gaba, Agniv Bandyopadhyay, Varun Ramanathan, Pranoy Varma, Ashutosh Shankar, Sayantan Chakraborty, Piyush Srivastava | **Interactive Session:** 20 May 2022

Session 13
Conducted by: Shubhada Agrawal, Soumyajit Pyne, Eeshan Modak, Varun Ramanathan, Pranoy Varma, Ashutosh Shankar, Sayantan Chakraborty, Piyush Srivastava | **Interactive Session:** 29 April 2022

JNP-ICTS SCIENCE EDUCATION PROGRAM
The JNP-ICTS Science Education Program is a new initiative where an experienced team of teachers from Jawaharlal Nehru Planetarium conducts training sessions for teachers from rural districts of Karnataka. The team brings simple activities and demonstrations to the classroom to illuminate basic ideas and concepts of science and mathematics. ICTS provides organizational support and the zoom platform for the online sessions. The first interactive session was held in 16 March 2022 and there have been three sessions held till date.

QUIZ TIME
On the occasion of Independence Day and as part of the Har Ghar Tiranga programme, a special event called Quiz Time for the TIFR community in Bengaluru was held. The event was held on 15 August 2022 at NCBS, Bengaluru. The ICTS Outreach team was part of the organization team.

FILM SCREENING
The film “Secrets of the Surface: The Mathematical Vision of Maryam Mirzakhani” was screened at ICTS on March 9, 2022, on the occasion of International Women’s Day 2022. The TIFR Committee on Gender Harmony screened the film across all TIFR Centres, throughout the week starting from March 7.

TEACHER TRAINING SESSION
A teacher training session, for science teachers from government schools in north Bengaluru was held on 25 March 2022. A hands-on introduction to key science experiments (included in the kit) was provided during the session. A total of 35 science teachers attended the event. With this event, 25 government schools were included in the existing list of 20 schools for the science kit distribution program, taking the total to 45.

PROMISE IN SCIENCE AND MATHEMATICS
Another event named PRISM (Promise in Science and Mathematics) was organized, as a part of the DAE iconic week to celebrate the Azadi ka Amrit Mahotsav. ICTS invited 75 students from government middle schools in north Bengaluru, along with 25 teachers. The event had two sessions - a hands-on maths circle session and a virtual tour of the astrophysical phenomenon observed in large length scales. The session was held in Kannada. PRISM has been planned as an annual event of ICTS Outreach.

ANNEXURE - A

The following are the details of seminars and colloquia during the period May-August 2022.

Cut Locus of Submanifolds: A Geometric and Topological Viewpoint | Sachchidanand Prasad (IISER Kolkata) | 29 August 2022

Higher Derivative Action Using Dilaton Weyl Multiplet in Four-Dimensional N=2 Supergravity | Madhu Mishra (IISER Trivandrum) | 24 August 2022

Bootstrability for 1d Defect CFT | Julius Julius (King's College, London) | 23 August 2022

The Black Hole Interior From Non-Isometric Codes and Complexity | Daniel Harlow (Massachusetts Institute of Technology, USA) | 17 August 2022

Systematic Bias on the Inspiral-Merger-Ringdown Consistency Test Due to Neglect of Orbital Eccentricity | Sajad Bhat (Chennai Mathematical Institute) | 17 August 2022

Aspects of N=3 Chern-Simons Quiver Gauge Theories with ADE Classification | Moumita Patra (NISER Bhubaneswar) | 16 August 2022

Uncovering Distinct Contributions to the Stress Relaxation in Dense Packings of Soft Spheres | Vinutha H A (Institute for Soft Matter Synthesis and Metrology Georgetown University, USA) | 10 August 2022

Is "Active Turbulence" Turbulence? A Tale with Plots and Subplots | Siddhartha Mukherjee (ICTS-TIFR, Bengaluru) | 10 August 2022

Measuring the Distribution of Binary Black Hole Spins | Javier Roulet (UC Santa Barbara, USA) | 10 August 2022

Fluctuating Hydrodynamics for a Driven Tracer | Rahul Dandekar (Institut de Physique Theorique, CEA, France) | 8 August 2022

Ulrich Bundles - An Existence Problem | Poornapushkala Narayanan (ICTS-TIFR, Bengaluru) | 8 August 2022

Supersymmetric Black Holes, the Superconformal Index, and Phases of AdS/CFT | Sameer Murthy (King's College, London) | 2, 3, 5 August 2022

Resurgence and Partial Theta Series | David Sauzin (Institute of Celestial Mechanics and Computation of the Ephemerides, Paris) |5 August 2022

Recent Developments in the Information Paradox | Suvrat Raju (ICTS-TIFR, Bengaluru) | 4 August 2022

Symplectic Eigenvalues: An Introduction and Recent Results | Tanvi Jain (Indian Statistical Institute, New Delhi) | 4 August 2022

An Introductory Mini-Course on Resurgence Theory: Generalised Borel-Laplace Summation, "Alien Calculus", and Applications | David Sauzin (Institute of Celestial Mechanics and Computation of the Ephemerides, Paris) | 25, 26 July 1 August 2022

Symplectic Geometry of SU(2) Character Varieties and Lattice Gauge Theory |T. R. Ramadas (Chennai Mathematical Institute) | 28 July 2022

Unconventional Phases and Phase Transitions in Frustrated Magnets | Animesh Nanda (ICTS-TIFR, Bengaluru) | 18 July 2022

Extending Taubes' Gromov Invariant to Calabi-Yau 3-Folds | Mohan Swaminathan (Princeton University, USA) | 14 July 2022

Aspects of Eigenstate Thermalization: Entanglement Entropy, Bounds on Chaos, and Non-Abelian ETH | Chaitanya Murthy (Stanford University, USA) |12 July 2022

Understanding Collective Phenomena from the Underlying Interaction Networks | Danny Raj M (Department of Chemical Engineering, Indian Institute of Science, Bangalore) | 8 July 2022

Understanding Flow Around a Black Hole with GRMHD Simulation | Indu Kalpa Dihingia (IIT Indore) | 24 June 2022

Spectral Properties of Random Perturbations of Non-Self-Adjoint Operators | Anirban Basak (ICTS-TIFR, Bengaluru) | 23 June 2022

Geometric Obstructions to Scale Separation | Cumrun Vafa (Harvard University) | 22 June 2022

Anomalous Transport in Integrable 1d Quantum Systems | Utkarsh Agrawal (University of Massachusetts, Amherst, USA) |21 June 2022

Meromorphic Connections on the Projective Line with Specified Local Behaviour | Daniel S. Sage (Louisiana State University, USA) |16 June 2022

Surrogate Model for Gravitational Wave Signals from Black Hole Binaries Built on Black Hole Perturbation Theory Waveforms Calibrated to numerical relativity: one model to rule both comparable and extreme mass Ratio Regime | Tousif Islam (University of Massachusetts, Dartmouth, USA) | 16 June 2022

The Zeroth Law of Black Hole Thermodynamics in Arbitrary Higher Derivative Theories of Gravity | Sayantani Bhattacharya (NISER Bhubaneswar) | 15 June 2022

Radiative Turbulence in Magnetically Dominated Astrophysical Plasmas | Emanuele Sobacchi (Columbia University, New York, USA) | 14 June 2022

Holographic RG and Exact RG | Semanti Dutta (Institute of Mathematical Sciences, Chennai) | 8 June 2022

Fractionalisation in Spin-Orbit Coupled Magnetic Insulators | Arnab Seth (ICTS-TIFR, Bengaluru) | 8 June 2022

Lagrangian Statistics in High and Low Re Number Flows: From Filaments in Fully Developed Turbulence to Tracers in Bacterial Suspensions | Rahul Kumar Singh (ICTS-TIFR, Bengaluru) | 2 June 2022

The World in a Grain of Sand | Shailesh Lal (U. Porto) | 1 June 2022

Majority Dynamics on Random Graphs | Debsoumya Chakraborti (Institute for Basic Science, South Korea) | 31 May 2022

Quantum Aspects of Black Holes: The Bags of Gold and Monogamy Paradoxes | Joydeep Chakravarty (ICTS-TIFR, Bengaluru) | 27 May 2022

Undecidable Problems in Quantum Field Theory | Yuji Tachikawa (IPMU, Japan) | 25 May 2022

A Last Progeny Modified Branching Random Walk | Partha Pratim Ghosh (Indian Statistical Institute, Delhi) | 25 May 2022

Liouville Conformal Field Theory: From Probability Theory to the Conformal Bootstrap | Vincent Vargas (ENS) | 19 May 2022

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The Central Dogma and Entanglement in de Sitter Space | Edgar Shaghoulian (University of Pennsylvania) | 11 May 2022

Observing Intermediate-Mass Black Holes and the Upper–Stellar-Mass Gap with LIGO and Virgo | Ajit Kumar Mehta (Max Planck Institute for Gravitational Physics (Albert Einstein Institute), Potsdam, Germany) | 11 May 2022

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Bosonization of Fermi Surfaces and Coadjoint Orbits | Dam Thanh Son (University of Chicago) | 4 May 2022

Higher-Order Interactions Dictate the Biodiversity in the Three Species Model |Priyanka (Department of Bioengineering at the University of Illinois Urbana-Champaign) | 4 May 2022

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Physics of Life: A survey from the US National Academy of Sciences | William Bialek (Princeton University, USA) | 29 July 2022

Deep Learning and Computations of PDEs | Siddhartha Mishra (Professor of Applied Mathematics, ETH Zürich, Switzerland) | 27 June 2022

36 Entangled Officers of Euler: A Quantum Solution to a Classically Impossible Problem | Arul Lakshminarayan (IIT Madras, Chennai) | 6 June 2022

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ANNEXURE - B

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