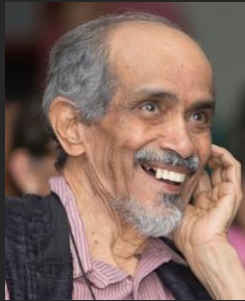
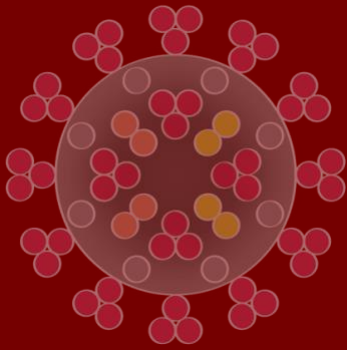


ACTIVITY REPORT

(September-December 2020)



RODDAM NARASIMHA passed away on 14 December 2020. He was closely associated with ICTS for many years. He was a member of the ICTS International Advisory Board since 2013. We are grateful for his constant guidance, especially during the establishment of the climate and earth sciences group at ICTS. We will miss him very much.



ICTS academic activities, particularly of programs and discussion meetings, have been affected by the COVID-19 crisis and lockdown. However, a number of programs, classes and seminars are now being held online.

I

ICTS ACTIVITIES

Summary of Programming Activities *(For details see following pages)* Programs/Discussion Meetings held: 6

Academic visitors to ICTS-TIFR: 1

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

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

Papers published: 15

arXiv submissions: 25

Ia. PROGRAMS

All programs were held online

Statistical Biological Physics: From Single Molecule to Cell

Organisers: **Debashish Chowdhury, Ambarish Kunwar and Prabal K. Maiti** | 7-18 December 2020

Turbulence: Problems at the Interface of Mathematics and Physics

Organisers: **Uriel Frisch, Konstantin Khanin and Rahul Pandit** | 7-18 December 2020

Winter School on Quantitative Systems Biology: Quantitative Approaches in Ecosystem Ecology

Organizers: **Antonio Celani, Jacopo Grilli, Simon Levin and Matteo Marsili** | 30 November-18 December 2020

Recent Developments Around p-Adic Modular Forms

Organizers: **Debargha Banerjee and Denis Benois** | 30 November-4 December 2020

Less Travelled Path of Dark Matter: Axions and Primordial Black Holes

Organizers: **Subinoy Das, Koushik Dutta, Raghavan Rangarajan and Vikram Renteria** | 9-13 November 2020

The following Programs were cancelled due to the COVID-19 situation:

Classical and Quantum Transport Processes: Current State and Future Directions

Organizers: **Alberto Imparato, Anupam Kundu, Carlos Mejia-Monasterio and Lamberto Rondoni** | 21 September-2 October 2020

Ib. DISCUSSION MEETINGS

All Discussion Meetings were held online

Extreme Nonequilibrium QCD

Organizers: **Ayan Mukhopadhyay and Sayantan Sharma** | 5-9 October 2020



The following Discussion Meetings were cancelled due to the COVID-19 situation:

Sediment Transport in the Ocean and Droplet Transport in Clouds
Organizers: Rama Govindarajan, Eckart Meiburg and Samriddhi Sankar Ray
| 14-18 September 2020

Complex Lagrangian Problems of Particles in Flows
Organizers: Massimo Cencini, Kristian Gustafsson, Filippo De Lillo
and Samriddhi Sankar Ray | 7-11 September 2020

Ic. LECTURE SERIES

FOUNDATION DAY LECTURE

Generalized Hydrodynamics

Speaker: **Herbert Spohn** (Technical University of Munich, Germany) | 26 December 2020



Due to the COVID-19 situation, the other lecture series could not be held.

Id. VISITS OF SCIENTISTS

Due to the COVID-19 situation, it wasn't possible to host any visitors at ICTS. However, one researcher joined ICTS as Simon Visiting Scholar during September–December 2020.

Aswin Balasubramanian, Rutgers University, USA

Ie. NEWS ON GRANTS, AWARDS AND FELLOWSHIPS



P. AJITH was awarded the inaugural ***"TWAS-CAS Young Scientist Award for Frontier Science in the Physical Sciences"*** – an award for young scientists below 45, across all developing countries. Ajith received the honour 'for his pioneering contributions to the development of phenomenological models of gravitational-wave signals from coalescing binary black holes.'



RIDDHIPRATIM BASU was awarded the ***INSA Medal for Young Scientists (Mathematics) for 2020***. Basu's work focusses on different aspects of probability theory including stochastic growth models, interacting particle systems, random matrices and random graphs and large deviations. Much of his research is inspired by questions in statistical physics and his works often aim to provide rigorous proofs of predictions made in the physics literature. Currently, one of his main research interests is to understand the conjectured universal behaviour in models of planar random growth such as first and last passage percolation.



ABHISHEK DHAR was selected for the ***fellowship of the Indian National Science Academy (INSA)***. Dhar works in the area of statistical physics and his current research interests include anomalous heat transport in low-dimensional systems, understanding the connection between microscopic dynamics and hydrodynamics, developing formalisms for open quantum systems, the time of arrival problem in quantum mechanics and active



MANAS KULKARNI, ANUPAM KUNDU and ICTS post-doctoral fellow **AMIT KUMAR CHATTERJEE**'s publication titled '*Spatiotemporal spread of perturbations in a driven dissipative Duffing chain: An out-of-time-ordered correlator approach*,' was selected by the Editors as ***the 'Editors' Suggestion' in the journal Physical Review E***. The study marks a significant step forward in the area of driven-dissipative systems and was selected by the editors due to its particular interest, importance and clarity.



AMIT APTE, faculty member of the Mathematics group at ICTS, was awarded one of the exclusive ***VAJRA grants*** from the SERB of the Department of Science and Technology. The grant enables international collaborators over a period of three years. He will be holding this grant jointly with Amarjit Budhiraja of the University of North Carolina.

Ila FACULTY

1. Pallavi Bhat joined the ICTS astrophysics faculty as Reader from 1 December 2020. Her interests overlap with the Fluid Dynamics group as well.
2. Praneeth Netrapalli (Microsoft Research Lab India) and Amarjit Budhiraja (University of North Carolina, Chapel Hill, USA) joined the ICTS Faculty as Associates.

Iib STUDENTS**GRADUATE PROGRAM**

1. 7 PhD & 6 IPhD students enrolled for the PhD and IPhD-2020 program. The students joined remotely from 1 September 2020.
2. Graduate courses are being conducted online via Zoom and Moodle. Students have registered for the courses from IISc, TIFR Colaba, and various other centres of TIFR.
3. Due to the pandemic, the final year students were given a six-month extension beyond the stipulated time.
4. The following student has registered for the PhD:
 - a) Jitendra Kethepalli on 28 September 2020
5. The following students have submitted their thesis:
 - a) Kasi Jaswin on 29 October 2020
 - b) Chandan Kumar Jana on 31 October 2020
 - c) Rahul Chajwa on 4 November 2020
6. The following students have successfully defended their thesis:
 - a) Anugu Sumith Reddy on 27 October 2020
 - b) Ritabrata Thakur on 6 November 2020
7. The following 5 students were nominated for the Global Young Scientists Summit 2020:
 - a) Santosh Ganappa
 - b) Monica Bapna
 - c) Divya Jaganathan
 - d) Shasvath Kapadia
 - e) Rithwik Vidyarthi

POSTDOCTORAL PROGRAM

1. Applications were invited for the 'Fall 2021 Postdoctoral program' from 26 Oct 2020. The applications are being obtained through two ways: ICTS web-based application portal and through Academic Jobs Online.

<https://www.icts.res.in/academic/postdoctoral-fellowships>

2. From the Summer 2020 hiring cycle, three candidates were offered the postdoctoral position, out of which following two have accepted it. They will be joining in January 2021.

Name	Research Group	Current Affiliation	Current Designation
Suman Dutta	Statistical and Condensed Matter Physics	Institute of Mathematical Sciences, Chennai	Postdoctoral Fellow
Arjun Paul	Mathematics	IIT Bombay	Postdoctoral Fellow

3. Anugu Sumith Reddy, a graduate student at ICTS joined as 'Research Associate - I' from 4 November 2020.

VISITING STUDENTS PROGRAM

1. The 'ICTS Long Term Visiting Students Program 2021' has been announced on 3 November 2020. The applications will open based on the COVID situation. <https://www.icts.res.in/academic/long-term-visiting-student-program>
2. The 'ICTS - S. N. Bhatt Memorial Excellence Fellowship 2021' program has been announced on 3 November 2020. The applications will open based on the COVID situation.

<https://www.icts.res.in/academic/summer-research-program>

KAAPI WITH KURIOSITY

The lecture series has been temporarily renamed *Kuriosity During Kuarantine*. All the lectures are being livestreamed on the ICTS YouTube channel.

Kolam: A Western Perspective

Speaker: **Claudia Silva** (Photographer & Videographer) and Oscar Garcia-Prada (Institute of Mathematical Sciences, Madrid) | 13 December 2020

Can Forests in India Influence Rainfall?

Speaker: **Jagadish Krishnaswamy** (Ashoka Trust for Research in Ecology and the Environment, Bengaluru) | 22 November 2020

Cosmic Whisper from Binary Black Holes

Speaker: **Archana Pai** (Indian Institute of Technology, Bombay) | 18 October 2020

Agents of Change: The Role of Catalysts in the Modern World

Speaker: **Shobhana Narasimhan** (Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru) | 26 September 2020

EINSTEIN LECTURES

Physics of Life

Speaker: **Vijaykumar Krishnamurthy** (ICTS-TIFR, Bengaluru) | 21 November 2020



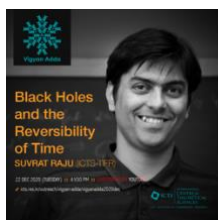
VIGYAN ADDA



Vigyan Adda is a forum through which academics from ICTS-TIFR and other similar institutes and universities can explain their scientific work to broader audiences, or engage with the public on scientific and mathematical topics of interest. These talks are aimed at people with a background in science, undergraduate students would get to know about current scientific developments in a lucid way. The first talk of the series was delivered by Suvrat Raju.

Black Holes and the Reversibility of Time

Speaker: **Suvrat Raju** (ICTS-TIFR, Bengaluru) | 22 December 2020



RAMANUJAN YATRA LECTURE

ICTS-TIFR was one of the organisers of the special lecture '**Gems of Ramanujan and Their Lasting Impact on Mathematics**' by **Manjul Bhargava** (Princeton University, USA) on 22 December 2020. This event was held in collaboration with Vigyan Prasar to celebrate National Mathematics Day. The event was also part of the Ramanujan Yatra program.

FILM SCREENING

- 1) ICTS Associate Jahnvi Phalkey's film '**Cyclotron**' was screened on 27 September 2020. The film screening was accompanied with a panel discussion with Shiraz Minwalla (TIFR, Mumbai). Cyclotron is a film about the world's oldest functional particle accelerator and the people who keep it running today. The film explores the life and legacy of the machine as well as the struggles and triumphs of its technicians, researchers and students. It is a comment on the state of experimental research and higher education in Indian universities.
- 2) Two films, '**Professor Vaidya**' and '**AKR**' were screened along with a discussion session on 17 December 2020. The participants were **Sunil Shanbag** (Theatre Director & Documentary Filmmaker), **Swati Dandekar** (Documentary Filmmaker), **P. Ajith** (ICTS-TIFR) and **Bala Iyer** (ICTS-TIFR). The virtual event was held in collaboration with Bangalore International Centre (BIC). The films were commissioned by The Inter-University Centre for Astronomy and Astrophysics (IUCAA). 'Professor Vaidya' is a film on PC Vaidya, Einstein's theory of gravity is described by a set of

rather complicated equations which use the mathematics of Riemannian geometry. It is very difficult to solve these equations, particularly to find solutions which describe physically interesting situations. But in 1942 Prahlad Chunilal Vaidya, a young mathematician, did pioneering work which did just this. 'AKR' is a film on the physicist A.K. Raychaudhuri. Among relativists across the world working on the problem of an expanding universe, as predicted by Einstein, was a young, still unknown, researcher in Kolkata, Raychaudhuri. His seminal work showed how a complex universe which was not the same at all points, which rotated and had shearing motions, could be studied. Both the films are directed by Shanbag, the script is written by Dandekar.

ANNEXURE - A

The following are the details of seminars and colloquia during the period September-December 2020. All seminars and colloquia were held online.

Thermodynamic Uncertainty Relation in Quantum Transport: Theory and Experiments | Bijay Kumar Agarwalla (Indian Institute of Science Education and Research, Pune) | 24 December 2020

Interfaces in Space and Time: Assembly in Biological Membranes and Glassy Materials | Speaker: Shachi Katira (University of California, Berkeley, USA) | 21 December 2020

Non-Equilibrium QCD in Heavy Ion Collisions | Speaker: Soeren Schlichting (Bielefeld University, Germany) | 16 December 2020

Chase-Escape Percolation on the Square Lattice | Speaker: Deepak Dhar (Indian Institute of Science Education and Research, Pune) | 16 December 2020

Is it Possible to Break the Cloud-Convection Parameterization Deadlock in Climate Model: New Insights | Speaker: Parthasarathi Mukhopadhyay (Indian Institute of Tropical Meteorology, Pune) | 15 December 2020

Climate Sensitivity of Himalayan Glaciers, Rivers, and Landscape | Speaker: Argha Banerjee (Earth and Climate Science, Indian Institute of Science Education and Research, Pune) | 8 December 2020

Hydrodynamics, "Superfluidity," and Giant Number Fluctuations in a Model of Self-Propelled Particles | Speaker: Punyabrata Pradhan (S. N. Bose National Centre for Basic Sciences, Kolkata) | 3 December 2020

Information Theoretic Measures in 2d CFT and Their Universal Properties | Speaker: Justin David (Indian Institute of Science, Bengaluru) | 2 December 2020

Localization in Quasiperiodic Systems | Speaker: Subroto Mukerjee (Indian Institute of Science, Bengaluru) | 26 November 2020

Quantum Extremal Islands Made Easy | Speaker: Rob Myers (Perimeter Institute for Theoretical Physics, Canada) | 25 November 2020

Martingale Theory for Housekeeping Heat | Speaker: Shamik Gupta (Ramakrishna Mission Vivekananda University, Coimbatore) | 19 November 2020

Gravitational Probes with Memory | Speaker: Akhil Sivakumar (ICTS-TIFR, Bengaluru) | 18 November 2020

Singularities in Hessian Element Distributions of Amorphous Media | Speaker: Kabir Ramola (TIFR, Hyderabad) | 12 November 2020

Causal Symmetry Breaking: Late Time Physics of Holographic Quantum Chaos | Speaker: Julian Sonner (University of Geneva, Switzerland) | 11 November 2020

Nonlinear Instability and Turbulence Suppression in Stratified Flows | Speaker: Ritabrata Thakur (ICTS-TIFR, Bengaluru) | 6 November 2020

Dynamics of a Particle Moving in a Two-Dimensional Lorentz Lattice Gas | Speaker: Shradha Mishra (Indian Institute of Technology (BHU), Varanasi) | 5 November 2020

Thermal Order in Large N Conformal Gauge Theories | Speaker: Soumyadeep Chaudhury (Hebrew University, Israel) | 4 November 2020

Numerical Modeling Aspects of the Indian Summer Monsoon | Speaker: Sandeep Sahany (Centre for Atmospheric Sciences, IIT Delhi (Currently at the Centre for Climate Research, Singapore)) | 3 November 2020

Dynamics of Waves and Vortices in the Ocean | Speaker: Jim Thomas (University of North Carolina at Chapel Hill, USA) | 2 November 2020

Universal Survival Probability for a d-Dimensional Run-and-Tumble Particle | Speaker: Satya Majumdar (Laboratory of Theoretical Physics and Statistical Models, France) | 29 October 2020

Supersymmetry Enhancement in 3d S-Fold SCFTs | Speaker: Noppadol Mekareeya (University of Milano-Bicocca) | 28 October 2020

Asymptotic Properties of Non-Linear Filters | Speaker: Anugu Sumith Reddy (ICTS-TIFR, Bengaluru) | 27 October 2020

The Taylor-von Neumann-Sedov Blast-Wave Solution: Comparisons with Microscopic Simulations of a One Dimensional Gas | Speaker: Santhosh Ganapa and Subhadip Chakraborti (ICTS-TIFR, Bengaluru) | 22 October 2020

Strongly Coupled QFT Dynamics via TQFT Coupling | Speaker: Mithat Unsal (North Carolina State University, USA) | 21 October 2020

Onset of Fluidization in Athermal Amorphous Materials: Insights from Microscopic Simulations and Elastoplastic Models | Speaker: Suman Dutta (Institute of Mathematical Sciences, Chennai) | 21 October 2020

Precision Measurements Aiding Gravitational Waves and Dark Matter Research | Speaker: Nancy Aggarwal (Northwestern University, USA) | 21 October 2020

Spatio-Temporal Chaos in Classical Open and Closed Systems: an OTOC Approach | Speaker: Amit Kumar Chatterjee (ICTS-TIFR, Bengaluru) | 19 October 2020

Informative Prior Guided Deep Representation Learning | Speaker: Prathosh A P (Indian Institute of Technology, Delhi) | 16 October 2020

Near-Extremal Fluid Mechanics | Speaker: Upamanyu Moitra (Tata Institute of Fundamental Research, Mumbai) | 14 October 2020

Development of Regional Ionospheric Data Assimilation Model: Understanding Nowcast/Forecast capability during Geomagnetic Storm Conditions | Speaker: P.B.S. Harsha (K L University, Vaddeswaram) | 14 October 2020

Entropy Production During Free Expansion of an Ideal Gas | Speaker: Subhadip Chakraborti (ICTS-TIFR, Bengaluru) | 12 October 2020

Stochastic Thermodynamics and its Applications in the Study of Microscopic Active Heat Engines | Speaker: Sourabh Lahiri (Birla Institute of Technology, Mesra, Jharkhand) | 8 October 2020

Black Hole Microstates and the Index | Speaker: Seok Kim (Seoul National University, South Korea) | 7 October 2020

Low Mass Black Holes from Dark Core Collapse | Speaker: Anupam Ray (Tata Institute of Fundamental Research, Mumbai) | 7 October 2020

Heavy Operators and Hydrodynamic Tails | Speaker: Luca Delacretaz (University of Chicago, USA) | 30 September 2020

Understanding the Basic Reproduction Number via Branching Process | Speaker: Sujit Kumar Nath (University of Leeds, England) | 30 September 2020

Fundamental Group Schemes of Hilbert Scheme of n Points on a Surface | Speaker: Arjun Paul (Indian Institute of Technology Bombay, Mumbai) | 29 September 2020

Geometric Mechanics of Scalar Field Theory and Minimal Surfaces | Speaker: Sumanto Chanda (ICTS-TIFR, Bengaluru) | 25 September 2020

A Physical Protocol for Observers Near the Boundary to Obtain Bulk Information in Quantum Gravity | Speaker: Chandramouli Chowdhury (ICTS-TIFR, Bengaluru) | 25 September 2020

Dynamics of Coupled Modes for Sliding Particles on a Fluctuating Landscape | Speaker: Sakuntala Chatterjee (S. N. Bose National Centre for Basic Sciences, Kolkata) | 24 September 2020

Modularity of Supersymmetric Partition Functions | Speaker: Abhijit Gadde (Tata Institute of Fundamental Research, Mumbai) | 23 September 2020

A Mmicroscopic Derivation of Nonlinear Fluctuating Hydrodynamics |

Speaker: Abhishek Dhar (ICTS-TIFR, Bengaluru) | 17 September 2020

Surface Defects from Fractional Branes | Speaker: Sujay Ashok (Institute of Mathematical Sciences, Chennai) | 16 September 2020

Euclidean Wormholes, Baby Universes, and Unitarity in Quantum Gravity

| Speaker: Vijay Balasubramanian (University of Pennsylvania, USA) | 9 September 2020

Universal Chiral Description of Hamiltonian and Non-Hamiltonian

Systems | Speaker: Urbashi Satpathi (ICTS-TIFR, Bengaluru) | 7 September 2020

The Holographic Storage of Quantum Information in Flat Spacetime |

Speaker: Siddharth G Prabhu (ICTS-TIFR, Bengaluru) | 5 September 2020

The Swampland in $d > 6$ | Speaker: Cumrun Vafa (Harvard University, USA) | 4 September 2020

Free Energy from Replica Wormholes | Speaker: Netta Englehardt

(Massachusetts Institute of Technology, Cambridge, USA) | 2 September 2020

Colloquia

Colloidal Glasses Bringing Glass Physics into Focus | Speaker: Rajesh

Ganapathy (Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru) | 14 December 2020

Unruly Waters: A Political and Cultural History of the Monsoon | Speaker:

Sunil Amrith (Yale University, USA) | Date: 23 November 2020

Quantum State Interferography | Speaker: Urbasi Sinha (Raman Research

Institute, Bengaluru) | 16 November 2020

Harish-Chandra Tempered Representations and Homogeneous Spaces |

Speaker: Yves Benoist (University of Paris-Saclay, France) | 11 November 2020

Topologically Ordered Matter and Why You Should be Interested |

Speaker: Steven H. Simon (Oxford University, UK) | 26 October 2020

Moments in Positivity: Metric Geometry, Covariance Estimation, Novel

Graph Invariant | Speaker: Apoorva Khare (Indian Institute of Science, Bengaluru) | Date: 28 September 2020

Modulation Spaces and Applications to Hartree-Fock Equations |

Speaker: Divyang Bhimani (TIFR CAM, Bengaluru) | 21 September 2020

ANNEXURE - B

PAPERS PUBLISHED – 40

In Journals – 15

1. *Signatures of a Spin-1/2 Cooperative Paramagnet in the Diluted Triangular Lattice of Y_2CuTiO_6* , S. Kundu, Akmal Hossain, Pranava Keerthi S, Ranjan Das, M. Baenitz, Peter J. Baker, Jean-Christophe Orain, D. C. Joshi, Roland Mathieu, Priya Mahadevan, Sumiran Pujari, **Subhro Bhattacharjee**, A. V. Mahajan, D. D. Sarma Phys. Rev. Lett. 125, 117206 (2020)
2. *Nonequilibrium Phase Transition in an Ising Model Without Detailed Balance*, **Manoj Kumar** and **Chandan Dasgupta** Physical Review E 102, 052111 (2020)
3. *Quantum Brownian Motion: Drude and Ohmic Baths as Continuum Limits of the Rubin Model*, **Avijit Das**, **Abhishek Dhar**, Ion Santra, **Urbashi Satpathi**, Supurna Sinha. Phys Rev E **102**, 062130 (2020)
4. *Transport in Spinless Superconducting Wires*, **Junaid Majeed Bhat** and **Abhishek Dhar**. Phys. Rev. B **102**, 224512 (2020)
5. *Localisation of Optimal Perturbations in Variable Viscosity Channel Flow*, Sharath Jose, Luca Brandt and **Rama Govindarajan**. International Journal of Heat and Fluid Flow, Volume 85, 108588, (2020). *Invited paper*
6. *Chaotic Orbits of Tumbling Ellipsoids*, Erich Essmann, Pei Shui, Stéphane Popinet, Stéphane Zaleski, Prashant Valluri, **Rama Govindarajan**. Journal of Fluid Mechanics, Volume 903, A10 (2020)
7. *Waves, Algebraic Growth and Clumping in Sedimenting Disk Arrays*, **Rahul Chajwa**, Narayanan Menon, Sriram Ramaswamy, **Rama Govindarajan** Phys. Rev. X **10**, 041016 (2020)
8. *The Actomyosin Cortex of Cells: A Thin Film of Active Matter*, **Vijay Kumar Krishnamurthy**. *Invited review*: Journal of the Indian Institute of Science Special Issue on “Cytoskeletal Mechanics” (2020)
9. *Particles Confined in Arbitrary Potentials with a Class of Infinite-Ranged Interactions*, A. Kumar, **M. Kulkarni**, **A. Kundu**, Phys. Rev. E 102, 032128 (2020)
10. *Emergence of Chaos and Controlled Photon Transfer in a Cavity-QED Network*, A. Dey, **M. Kulkarni**, Phys. Rev. Research **2**, 042004(R) (2020)
11. *Emergent PT Symmetry in a Double-Quantum-Dot Circuit QED Set-Up*, A. Purkayastha, **M. Kulkarni**, Y. N. Joglekar. Phys. Rev. Research **2**, 043075 (2020)
12. *Nonanalytic nonequilibrium field theory: Stochastic reheating of the Ising model*, Camille Aron and **Manas Kulkarni**. Phys. Rev. Research **2**, 043390 (2020)

13. *Spatio-Temporal Spread of Perturbations in a Driven Dissipative Duffing Chain: An OTOC Approach*, A. K. Chatterjee, **A. Kundu**, **M. Kulkarni**, *Phy. Rev. E* **102**, 052103 (2020). **Selected as Editors' Suggestion**
14. *A simple quantum test for smooth horizons*, Kyriakos Papadodimas, **Suvrat Raju**, **Pushkal Shrivastava**. *JHEP* **12** (2020), 003
15. *Bridging Inertial and Dissipation Range Statistics in Rotating Turbulence*, S. K. Rathore, M. K. Sharma, **Samriddhi Sankar Ray**, and S. Chakraborty. *Physics of Fluids* **32**, 095104 (2020)

ArXiv - 25

1. *Search for the Stochastic Gravitational-Wave Background Induced by Primordial Curvature Perturbations in LIGOs Second Observing Run*, **S. J. Kapadia**, **K. L. Pandey**, T. Suyama, S. Kandhasamy, **P. Ajith**, Submitted to *Phys. Rev. Lett.* arXiv:2009.05514 (2020)
2. *Improved Early Warning of Compact Binary Mergers Using Higher Modes of Gravitational Radiation: A Population Study*, **M. K. Singh**, **S. J. Kapadia**, **M. A. Shaikh**, D. Chatterjee, **P. Ajith**, Submitted to *MNRAS*. arXiv:2010.12407 (2020)
3. *Statistics Tuned Entanglement of the Boundary Modes in Coupled Su-Schrieffer-Heeger Chains*, Saikat Santra, **Adhip Agarwala**, **Subhro Bhattacharjee**. arXiv:2010.07327 (2020)
4. *Probing Signatures of Fractionalisation in Candidate Quantum Spin Liquid Cu_2IrO_3 via Anomalous Raman Scattering*, Srishti Pal, Arnab Seth, Piyush Sakrikar, Anzar Ali, **Subhro Bhattacharjee**, D. V. S. Muthu, Yogesh Singh, A. K. Sood. arXiv:2011.00606 (2020)
5. *Classical Many-Body Chaos with and Without Quasiparticles*, Thomas Bilitewski, **Subhro Bhattacharjee**, Roderich Moessner. arXiv:2011.04700 (2020)
6. *Finite Decomposition of Minimal surfaces, Maximal surfaces, Time-like Minimal surfaces and Born-Infeld solitons*, **Rukmini Dey**, **Kohinoor Ghosh**, Sidharth Soundararajan arXiv:2010.04405 (2020)
7. *The Taylor-von Neumann-Sedov Blast-Wave Solution: Comparisons with Microscopic Simulations of a One-Dimensional Gas* **Santhosh Ganapa**, **Subhadip Chakraborti**, **Abhishek Dhar**. arXiv:2010.15868 (2020)
8. *Quantum Dynamics Under Continuous Projective Measurements: Non-Hermitian Description and the Continuous Space Limit*, Varun Dubey, Cedric Bernardin, **Abhishek Dhar**. arXiv:2012.01196 (2020)
9. *Free Field World-Sheet Correlators for AdS_3* Andrea Dei, Matthias R. Gaberdiel, **Rajesh Gopakumar**, Bob Knighton arXiv:2009.11306 (2020)
10. *From Symmetric Product CFTs to AdS_3* Matthias R. Gaberdiel, **Rajesh Gopakumar**, Bob Knighton, **Pronobesh Maity**. arXiv:2011.10038 (2020)
11. *Wetting and Wrapping of a Floating Droplet by a Thin Elastic Filament*, S Ganga Prasath, Joel Marthelot, Narayanan Menon, **Rama Govindarajan** arXiv:2010.04599 (2020)

12. *Optimal Lockdowns in Pandemics*, **Joseph Samuel**, Supurna Sinha. arXiv:2009.01448 (2020)
13. *Multilayered Density Profile for Noninteracting Fermions in a Rotating Two-Dimensional Trap*, **Manas Kulkarni**, Satya N. Majumdar, Gregory Schehr. arXiv:2009.07251 (2020)
14. *Local Time of an Ornstein-Uhlenbeck Particle*, G. Kishore, **Anupam Kundu** arXiv:2010.06262 (2020)
15. *Imbalance for a Family of One-Dimensional Incommensurate Models with Mobility Edges*, Sayantan Roy, Subroto Mukerjee, **Manas Kulkarni**. arXiv:2010.09251 (2020)
16. *Spatio-Temporal Spread of Perturbations in Power-Law Models at Low Temperatures: Exact Results for OTOC*, **Bhanu Kiran S.**, David A. Huse, **Manas Kulkarni**. arXiv:2011.09320 (2020)
17. *Local Time for Run and Tumble Particle*, **Prashant Singh**, **Anupam Kundu**. arXiv:2011.04716 (2020)
18. *Resetting with Stochastic Return Through Linear Confining Potential*, Deepak Gupta, Arnab Pal, **Anupam Kundu** arXiv:2012.12878 (2020)
19. *Fermionic Open EFT from Holography*, **R. Loganayagam**, Krishnendu Ray, **Akhil Sivakumar**. arXiv:2011.07039 (2020)
20. *Holographic KMS Relations for Finite Density Fermions*, **R. Loganayagam**, Krishnendu Ray, **Shivam K. Sharma**, **Akhil Sivakumar**. arXiv:2011.08173 (2020)
21. *Heisenberg Picture for Open Quantum Systems*, Nachiket Karve, **R. Loganayagam**. arXiv:2011.15118 (2020)
22. *Effective Field Theory of Stochastic Diffusion from Gravity*, **Jewel K. Ghosh**, **R. Loganayagam**, **Siddharth G. Prabhu**, Mukund Rangamani, **Akhil Sivakumar**, **V. Vishal**. arXiv:2012.03999 (2020)
23. *2020 Nobel Prize for Physics: Black holes and the Milky Way's Darkest Secret*, **Joseph Samuel** arXiv:2011.06656 (2020) **Invited publication in Current Science**
24. *Information Transfer with a Gravitating Bath*, Hao Geng, Andreas Karch, Carlos Perez-Pardavila, **Suvrat Raju**, Lisa Randall, Marcos Riojas, Sanjit Shashi. arXiv:2012.04671 (2020)
25. *Lessons from the Information Paradox*, **Suvrat Raju**. arXiv:2012.05770 (2020)

Consortium-10

1. *Gravitational-Wave Constraints on the Equatorial Ellipticity of Millisecond Pulsars*, The LIGO Scientific Collaboration, the Virgo Collaboration, R. Abbott et al Ap. J. Lett 902 No. 2 L21 (2020)

2. *GW190521: A Binary Black Hole Merger with a Total Mass of 150 Msun*
R. Abbott et al. (LIGO Scientific Collaboration and Virgo Collaboration)
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