

ICTS



INTERNATIONAL
CENTRE *for*
THEORETICAL
SCIENCES

NEWS

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TATA INSTITUTE OF FUNDAMENTAL RESEARCH

THE AGE OF UNREASON: SCIENCE, DOUBT, AND THE COURAGE TO THINK

ATISH DABHOLKAR

It is always a special pleasure to return to one's academic home. Having spent more than a decade at the Tata Institute of Fundamental Research, I continue to feel a deep sense of belonging to its community. Being invited here, especially by the alumni association, makes the occasion particularly meaningful.

This moment also coincides with the centenary of Abdus Salam, the founding director of the International Centre for Theoretical Physics and one of the most influential physicists of the twentieth century. Across the world, his legacy is being celebrated. That this gathering takes place in the same spirit of reflection and engagement feels like more than coincidence.

... continued on Page 2 ...

TOPOLOGICAL QUANTUM STATES OF MATTER: A JOURNEY OF DISCOVERY AND SURPRISE

DUNCAN M. HALDANE

The development of topological quantum matter has been one of the most surprising and prolific revolutions in physics. It is a story not only of equations and experiments, but also of serendipity, persistence, and the willingness to take puzzling results seriously. My own path intersected with these discoveries in ways that I could never have anticipated. When I began my work in condensed matter physics, there was a prevailing sense that the field had reached a kind of completion. The fundamentals of electronic and magnetic materials appeared to be understood, and quantum mechanics together with solid-state theory seemed to form a comprehensive toolkit.

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Director's Note

It is such a pleasure to offer you this latest instalment of the ICTS Newsletter. We can't have better food for thought than the two lead articles by Atish Dabholkar and Duncan Haldane.

Atish fittingly gave the Abdus Salam Memorial Lecture at ICTS in February on "*Joining Forces: To Unify Nature and to Unite the World*", a stirring call for science as the medium to transcend national boundaries and conflicts while deepening humanity's understanding of nature. You will find the recording on our webpage. Here we have Atish's talk on a related topic - on the critical role scientific temper plays in society.

Duncan Haldane and David Gross were both at ICTS last year while they participated as the guests of honour at the *Quantum India, Bengaluru* summit organised by the Karnataka government. Duncan gives a glimpse of his pathbreaking work and the remarkable role topology plays in uncovering the properties of various states of complex matter. It is a striking illustration of the unity of science and mathematics.

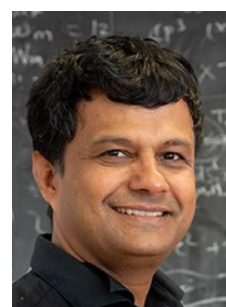
David Gross being awarded the Special Breakthrough Prize was especially meaningful for all of us at ICTS given the foundational role he has played in the establishment and flourishing of our centre. The kind of selfless and unconditional support he has given ICTS is so exceedingly rare to find. For me, personally, David has played a double role - as my PhD guru who shaped my thinking about physics. It is a privilege to have his continuing association with us and do join us as we celebrate this unique recognition.

Rajesh Gopakumar
Centre Director, ICTS-TIFR

ATISH DABHOLKAR | *continued from Page 1*

THE AGE OF UNREASON: SCIENCE, DOUBT, AND THE COURAGE TO THINK

ATISH DABHOLKAR



Speaking to this audience, however, is not easy. Before me sit accomplished scientists as well as students who may one day shape the future of science. What I say today may resonate differently with each group.

Yet perhaps that is appropriate. Science itself is a conversation across generations. Between those who have spent their lives in inquiry and those just beginning to ask questions.

Beginnings: Curiosity and the Making of a Scientific Mind

When I was your age, I grew up in a small town in India and studied science in Marathi until the 10th standard. My journey into science was not marked by early sophistication, but by curiosity. Simple questions about how things worked. That early curiosity matters. It is the starting point of all scientific inquiry.

But alongside curiosity, there is something equally important: learning how to think. What does it mean to think scientifically? What is scientific temper – not as a slogan, but as a lived practice? Scientific temper is not confined to laboratories or equations. It is a way of approaching the world: with scepticism, with openness to evidence, and with the humility to change one's mind.

There is a famous work by Thomas Paine titled *The Age of Reason*. It represents a turning point in human history, when reason and observation began to replace unquestioned authority as the basis of knowledge. Similarly, Immanuel Kant defined enlightenment as humanity's emergence from self-imposed immaturity, the courage to think independently. His exhortation, *sapere aude* ("dare to know"), remains one of the most powerful calls to intellectual freedom.

Over the past three centuries, these ideals have shaped the rise of modern science. The values of scepticism, tolerance for disagreement, and reliance on evidence have enabled extraordinary advances in our understanding of the natural world.

Consider what science has achieved. We have uncovered the structure of atoms, mapped the genome, understood the motion of planets, and begun to probe the nature of black holes.

Black Holes are objects so extreme that they challenge our very conception of space and time.

If one pauses to reflect, this is astonishing. The human brain evolved not for abstract reasoning, but for survival. Hunting, gathering, navigating immediate environments. And yet, through collective effort, we have built a body of knowledge that reveals the deepest workings of the universe.

A Paradox: Living in an Age of Unreason

And yet, despite these achievements, we find ourselves in what can only be described as an age of unreason. We live in a world saturated with the products of science. Smartphones, antibiotics, vaccines, satellites. And yet we increasingly encounter distrust of scientific knowledge. Conspiracy theories flourish. Anti-vaccine movements gain traction. Climate change denial persists despite overwhelming evidence. This is a striking paradox. We rely on science in our daily lives, but often reject its conclusions when they are inconvenient or unsettling.

As E. O. Wilson memorably put it, humanity is caught between "paleolithic emotions, medieval institutions, and godlike technology."

Think about the technologies we take for granted. Speaking to someone across continents, seeing their face in real time, accessing vast stores of knowledge instantly, these would have seemed miraculous just a few centuries ago. And yet, we accept them without reflection, even as we question the very scientific principles that make them possible.

Part of this tension arises from a growing distrust of institutions, including scientific ones. Some criticisms are legitimate. Science can appear distant, elitist, and disconnected from the concerns of ordinary people. Institutions like the Tata Institute of Fundamental Research often function in English, creating barriers in a linguistically diverse society. There is also the undeniable influence of corporate interests in certain areas of research. Historical examples, such as the manipulation of data related to nicotine or glyphosate, have eroded public trust. These critiques must be taken seriously.

At the same time, it is crucial to distinguish between questioning the social structures of science and rejecting scientific knowledge itself. The former is necessary; the latter is dangerous.

We live in an era where information is abundant, but understanding is scarce. A useful analogy is that of sport. One cannot wake up one morning and play an international cricket match. Facing a fast bowler delivering at 160 kilometres per hour requires years of training, discipline, and experience. Scientific expertise is no different. It is built over years of study, experimentation, and critical engagement with evidence.

And yet, there is a growing tendency to equate superficial familiarity with genuine expertise. A doctor friend once spoke of the challenge of dealing with "Google doctors." These are patients who read a few articles online and then attempt to override professional advice.

Today, one might extend this to a broader phenomenon: the belief that access to information is equivalent to understanding. Of course, questioning is essential. It is entirely reasonable to ask a doctor why a particular treatment is recommended, or to seek clarification about a diagnosis. But there must also be a willingness to recognise the limits of one's own knowledge. The problem arises when people assert that their uninformed opinions are equal in value to informed expertise.

Science in Its Social and Historical Context

Science is not created in a vacuum. It is shaped by the societies in which it develops. One important critique concerns the Eurocentric narrative of scientific history. The so-called "Greek miracle" is often presented as the singular origin of rational thought, sidelining contributions from other cultures.

But science is a global enterprise, built through the contributions of many civilizations. Consider Euclid, whose work laid the foundations of geometry. Or Brahmagupta, who formalised the concept of zero and advanced algebra. Or Al-Khwarizmi, whose work gave rise to algebra and the very term "algorithm." While Euclid is widely recognised, Brahmagupta and Al-Khwarizmi are far less commonly acknowledged in mainstream narratives. Correcting this imbalance is important. Not out of nationalist pride, but for historical accuracy.

At the same time, it is equally important to avoid the opposite error: exaggerating ancient achievements in ways that blur the line between history and myth. Scientific temper requires honesty, even when it challenges our sense of identity.

In some intellectual circles, critiques of science have gone too far. Thinkers such as Bruno Latour have emphasized the social dimensions of scientific knowledge. While this perspective offers valuable insights, it can lead to problematic conclusions when taken to extremes. If scientific facts are treated as mere social constructs, one risks undermining



Atish Dabholkar delivering the Abdus Salam Memorial Lecture titled *Joining Forces to Unify Nature and to Unite the World*, February 2026. Photo credit AS Sumukh

the very idea of objective reality. As Steven Weinberg pointed out, while one can study mountaineering as a social activity, Mount Everest itself is not a social construct. It exists independently of our beliefs about it. This distinction is crucial. Science is influenced by social factors, but it is not reducible to them.

Scientific Temper in Practice: The Maharashtra Example

Scientific temper is not an abstract ideal. It has concrete implications for society. In Maharashtra, the Anti-Superstition and Black Magic Act was introduced after sustained efforts by organizations such as the Maharashtra Andhashraddha Nirmoolan Samiti.

To avoid philosophical debates about belief, the law focuses on specific harmful practices. These include claiming miraculous cures without medical evidence, performing "surgeries" without instruments, promising to influence the sex of an unborn child, discouraging medical treatment in favour of superstition.

Thousands of cases have been registered under this law. Disturbingly, there have even been instances of human sacrifice, events that remind us that superstition is not merely a relic of the past.

Consider a particularly troubling example. A man claimed to be an incarnation of Krishna. Using this claim, he manipulated a family, extracting large sums of money and exploiting both the wife and daughter under the guise of divine authority. The Constitution guarantees freedom of belief. Individuals are free to practise their faith. But this was not faith, it was exploitation. Such cases illustrate the importance of distinguishing between personal

belief and practices that cause harm.

At its core, science is about aligning belief with evidence. One intuitive way to understand this is through the idea of betting. How much are you willing to stake on a particular belief? Would you bet your life on surviving a fall from a ten-storey building? Almost certainly not. Would you trust a medicine that works in 999 out of 1000 cases? Probably yes.

Science formalises this intuition through probability and statistical reasoning. It teaches us that beliefs should be proportionate to evidence. Extraordinary claims require extraordinary evidence.

The Higgs Boson: Patience and Precision

The discovery of the Higgs boson offers a striking example. Physicists predicted its existence decades before it was observed. But prediction was not enough. They required an extraordinarily high level of confidence, so high that the probability of error was less than one in a million. Achieving this level of certainty required massive investments, sophisticated experiments, and the collaboration of thousands of scientists. Only then was the particle accepted as real. Scientific thinking demands a particular kind of discipline: the willingness to doubt one's own ideas. As Richard Feynman famously said, "The first principle is that you must not fool yourself. And you are the easiest person to fool."

Every scientist recognises this experience. An idea that seems brilliant in the morning may collapse under scrutiny by the afternoon. Learning to test, question, and sometimes abandon one's own ideas is central to the scientific process.

Questioning Authority: Gandhi and Tagore

Scientific temper also involves the courage to question authority. After the 1934 Bihar earthquake, Mahatma Gandhi suggested that it might be a form of divine retribution. Rabindranath Tagore disagreed, arguing that natural events must have natural explanations.

This exchange is instructive. It shows that respect for great individuals does not preclude critical thinking.

In correspondence with Julian Huxley, Gandhi emphasized the inseparability of rights and duties. This principle applies directly to science. The right to explore and understand nature comes with responsibilities: to share knowledge, to use it ethically, and to preserve the environment. Many of the challenges we face today, particularly climate change, arise from a failure to balance these rights and duties.

Science as a Universal Human Endeavour

At institutions like the International Centre for Theoretical Physics, scientists from across the world collaborate on shared problems. Natural phenomena do not respect national boundaries. A cyclone, a pandemic, or climate change affects all of humanity.

Science, therefore, is inherently international. It is a shared human enterprise. As Abdus Salam emphasized, scientific knowledge belongs to all of humankind.

Ultimately, scientific temper is about courage. It is the courage to question, to doubt, and to seek evidence. It is the willingness to change one's mind in the face of new information. And it is the humility to recognise the limits of one's own understanding.

As Gautama Buddha advised, one must rely on reason and experience rather than unquestioned authority. And as B. R. Ambedkar reminded us, the progress of society depends on the ability to challenge established norms.

We live in an age of extraordinary scientific achievement. And yet, also in an age of unreason. The choice before us is clear. We can retreat into belief without evidence, or we can embrace the harder path of critical thinking.

To choose the latter is to honour not just science, but the very idea of human progress.

(Adapted from the TIFR Alumni Association Public Lecture, National Science Day, February 2026)

Atish Dabholkar is a theoretical physicist. He is currently the Director of the Abdus Salam International Centre for Theoretical Physics (ICTP) and Assistant Director-General, UNESCO. He was a Professor at the Department of Physics, Tata Institute of Fundamental Research for more than a decade.

DUNCAN M. HALDANE | *continued from Page 1 ...*

TOPOLOGICAL QUANTUM STATES OF MATTER: A JOURNEY OF DISCOVERY AND SURPRISE

DUNCAN M. HALDANE



Many physicists believed that only technical refinements remained. Yet the reality was quite different. Nature still had profound secrets to reveal, and these revelations came in the form of unexpected anomalies that transformed our

understanding of matter.

The Quantum Hall Effect: Precision from Topology

The first great surprise came in 1980, with Klaus von Klitzing's discovery of the quantum Hall effect. When a two-dimensional electron gas is subjected to a strong magnetic field, the Hall conductance takes on values quantised to extraordinary precision:

$$\sigma_H = \frac{ne^2}{h}, \quad n \in \mathbb{Z}$$

What makes this remarkable is its robustness. The quantisation is insensitive to disorder, impurities, or geometry, and holds to an accuracy of parts per billion. This was the first unmistakable appearance of topological invariants, quantised, global properties of wavefunctions, entering into physical observables.

The story behind the discovery illustrates how much chance can matter. Von Klitzing's group measured Hall voltage by fixing the current and sweeping the magnetic field, producing consistent data. A Japanese team performing almost identical experiments, but varying the current instead, found erratic results. What looked like a faulty voltmeter was, in fact, the first glimpse of a new topological phase of matter.

It took time to understand that the phenomenon arises from chiral edge states, unidirectional currents at the boundary of the sample that are immune to scattering. These edge states are guaranteed by topology, not accident. The Streda formula,

$$\Delta J^0 = \sigma_H \Delta B^z$$

offered deeper insight by linking changes in charge density to applied magnetic flux, and hinted at the role of spectral flow in producing quantised edge transport.

Spin Chains and the Haldane Gap

Around the same time, I was studying antiferromagnetic spin chains. Prevailing wisdom, based on analogies with classical systems and spin-wave theory, held that chains with integer and half-integer spins should behave similarly. In 1983, I proposed the opposite: integer-spin chains possess a gapped ground state, while half-integer chains remain gapless.

This prediction, now known as the Haldane gap, was initially dismissed. Some referees even rejected my papers on the grounds that it violated continuity and renormalization principles. Yet experiments later confirmed the result, notably in nickel-based chain compounds such as NENP.

The explanation lay in mapping spin chains to non-linear sigma models, which revealed a topological term in the Lagrangian:

$$S_{\text{top}} = \frac{\theta}{4\pi} \int dt dx \Omega \cdot (\partial_t \Omega \times \partial_x \Omega)$$

with

$$\theta = 2\pi S.$$

For half-integer spins, the topology prevents a gap from opening, while for integer spins it allows one. This difference gave rise to what we now call symmetry-protected topological (SPT) order, characterised not by broken symmetry but by non-local entanglement and protected edge states.

This discovery eventually became one of the foundations for the broader theory of topological matter, and decades later was recognized with the Nobel Prize I shared with Kosterlitz and Thouless.

Luttinger Liquids and One-Dimensional Physics

At the same time, I was also exploring the physics of one-dimensional electron systems. Unlike Fermi liquids in higher dimensions, one-dimensional systems exhibit exotic features such as spin-charge separation. Their properties are encoded not in a single Fermi velocity but in two parameters, v_N , v_J .

Through the method of bosonization, these complex fermionic problems could be re-expressed as harmonic oscillators, allowing tractable analytical solutions. This framework, now known as Luttinger liquid theory, found applications across condensed matter physics and even in conformal field theory.

Edge Modes and Majorana Fermions

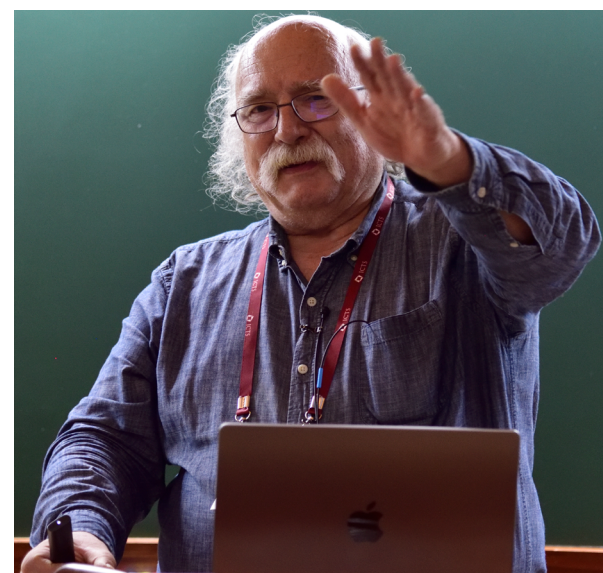
The discovery of the Haldane gap and its associated edge states helped inspire new models of fractionalization. Among these is Kitaev's Majorana chain, which supports zero-energy modes at its edges. Particles that are their own antiparticles. Like the $S=1$ spin chain, the Majorana chain exhibits degenerate edge states protected by the topology of the bulk.

These states are now at the centre of efforts in topological quantum computing, where their inherent robustness could provide fault-tolerant qubits. Microsoft's "Majorana platform," for instance, is one such real-world attempt to harness this principle.

The Haldane Model: Topology Without Fields

In 1988, I proposed a different kind of quantum Hall system, one that did not require a magnetic field at all. In what is now called the Haldane model, complex hopping terms on a honeycomb lattice produce broken time-reversal symmetry and quantised Hall conductance.

At the time, the idea was seen as more of a theoretical curiosity than a prediction of real materials. But decades later, it became central to the classification of topological insulators, materials that conduct on their surfaces or edges while remaining insulating in the bulk. In 2013, the effect was realised experimentally in thin films of chromium-doped topological insulators, and later extended to photonic crystals and flat-band systems that host fractional topological phases.



Duncan Haldane during the Special Colloquium titled Unexpected Surprises History of the Emergence of "Topological Quantum States of Matter," July 2025. Photo credit AS Sumukh

Lessons from Serendipity

The history of these discoveries underscores the complex ways in which science advances. Von Klitzing's careful choice of measurement protocol, and my own arguments with colleagues and battles with sceptical referees, were as important as the equations themselves. Disagreement, persistence, and accident all shaped the development of the field.

The lesson for young scientists is that one need not aim to be Einstein. What is required is readiness: the persistence to follow unexpected clues, the willingness to think differently, and the preparation to recognize the significance of anomalies that others might ignore.

A Continuing Story

Today, topological quantum matter has become a central theme in physics, with implications ranging from quantum computation to materials engineering. The journey from puzzling anomalies to a robust theoretical framework exemplifies how science often advances. Not in a straight line, but through disruption, surprise, and the overturning of assumptions.

The story is still unfolding. I hope that the next generation of physicists, confronting data that seems inexplicable, will take it seriously. Hidden in those anomalies may be the seeds of the next revolution.

(Adapted from the Special Colloquium at ICTS-TIFR, July 2025)

Duncan Haldane is the Eugene Higgins Professor of Physics at Princeton University. He is the recipient of the 2016 Nobel Prize in Physics for "theoretical discoveries of topological phase transitions and topological phases of matter."

BETWEEN THE SCIENCE

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

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

ICTS graduate student CHANDRANATHAN ANANDVIJAYAN was selected for the prestigious Nordita Visiting PhD Fellowship.

PRAYUSH KUMAR was awarded the APJ Abdul Kalam HPC & AI Award.

DAVID GROSS AWARDED SPECIAL BREAKTHROUGH PRIZE IN FUNDAMENTAL PHYSICS

ICTS is delighted to celebrate the recognition of David Gross, Chair of its International Advisory Board, as the recipient of this year's Special Breakthrough Prize in Fundamental Physics. The prize citation honours him "for a lifetime of groundbreaking contributions to theoretical physics, from the strong force to string theory, and for tireless advocacy for basic science worldwide."

A pioneering figure in modern physics, Prof. Gross is widely known for his seminal work on the strong nuclear force and his influential contributions to string theory. He won the Nobel Prize in Physics in 2004.

Prof. Gross' association with ICTS has been long-standing and deeply valued. Over more than two decades he has played a vital role in shaping its vision and growth.

Prof. Gross' remarks at the prize ceremony held on April 18, 2026.

Curiosity drives basic science. Curiosity, the human urge to understand. And yet every discovery reveals new vistas, new questions. As knowledge grows, so does our awareness of what we don't yet know. In that sense ignorance expands the long understanding and drives science forward. The opportunity to explore these questions with brilliant colleagues to discover the beauty of nature is reward in itself. This prize is a wonderful bonus. Scientific discovery once revealed belongs to humanity forever. For good or for worse. And our discoveries challenge us to use this knowledge and technology wisely. If we don't, we are doomed. Thank you.



David Gross receives his Special Breakthrough Prize from Lily Collins at the 12th Breakthrough Prize Ceremony, April 2026. Photo credit Getty Images

PROGRAMS

Hard Probes in Non-equilibrium QCD Matter

16-27 March 2026 ♦ Organizers — Santosh Kumar Das (IIT Goa), Nihar Ranjan Sahoo (IISER Tirupati) and Sayantan Sharma (IMSc, Chennai) |

Exploring Exoplanets: The Journey to Discover New Frontiers and Habitable Worlds

16-27 March 2026 ♦ Organizers — Ravi Kopparappu (NASA Goddard Space Flight Center, USA), Ravinder Kumar Banyal (IIA Bengaluru), Sourav Chatterjee (TIFR Mumbai), Priyanka Chaturvedi (TIFR Mumbai), Gopal Hazra (IIT Kanpur), Jayesh M Goyal (NISER Bhubaneswar), Liton Majumdar (NISER Bhubaneswar), Dibyendu Nandi (IISER Kolkata), Shyama Narendranath (U R Rao Satellite Centre, Bengaluru), Joe P Ninan (TIFR Mumbai), Prashant Pathak (IIT Kanpur), Manoj Puravankara (TIFR Mumbai), Sudha Rajamani (IISER Pune), Prabal Saxena (NASA Goddard Space Flight Center, USA), T. Sivarani (IIA Bengaluru) and Anandmayee Tej (IIST Thiruvananthapuram)

Geometric Methods in Percolation and Spin Models

2-13 March 2026 ♦ Organizers — Subhajit Goswami (TIFR, Mumbai), Piet Lammers (CNRS, Paris, France) and Trishen S. Gunaratnam (TIFR, Mumbai and ICTS-TIFR, Bengaluru)

Geometric Structures and Stability

16-27 February 2026 ♦ Organizers — Oscar Garcia-Prada (ICMAT, Madrid, Spain) and Pranav Pandit (ICTS-TIFR, Bengaluru)

Geometric Analysis and PDE

2-13 February 2026 ♦ Organizers — Ali Hyder (TIFR-CAM, Bengaluru), Sandeep K (TIFR-CAM, Bengaluru), Debabrata Karmakar (TIFR-CAM, Bengaluru) and Yannick Sire (Johns Hopkins University, USA)

School for Advanced Topics in Particle Physics (SATPP): QCD, Effective Field Theories, and Nuclear Physics

19-30 January 2026 ♦ Organizers — Rick Sandeepan Gupta (TIFR, Mumbai), Namit Mahajan (PRL, Ahmedabad), Tuhin S. Roy (TIFR, Mumbai) and Sudhir Vempati (IISc, Bengaluru)

Generalised Symmetries and Anomalies in Quantum Phases of Matter

5-16 January 2026 ♦ Organizers — Subhro Bhattacharjee (ICTS-TIFR, Bengaluru) and Sergej Moroz (Karlstad University, Sweden)

DISCUSSION MEETINGS

11th Indian Statistical Physics Community Meeting

27-29 April 2026 ♦ Organizers — Ranjini Bandyopadhyay (RRI, Bengaluru), Abhishek Dhar (ICTS-TIFR, Bengaluru), Kavita Jain (JNCASR, Bengaluru), Rahul Pandit (IISc, Bengaluru), Sanjib Sabhapandit (RRI, Bengaluru) and Samridhhi Sankar Ray (ICTS-TIFR, Bengaluru)

Targeted Questions: Strange Metals

23-24 April 2026 ♦ Organizers — Subhro Bhattacharjee (ICTS-TIFR, Bengaluru), Aavishkar Patel (ICTS-TIFR, Bengaluru) and Nandini Trivedi (Ohio State University, USA)

Gravitational Wave Open Data Workshop

20-22 April 2026 ♦ Organizers — Parameswaran Ajith (ICTS-TIFR, Bengaluru), Ritesh Harshe (ICTS-TIFR, Bengaluru), Prayush Kumar (ICTS-TIFR, Bengaluru), Neha Sharma (ICTS-TIFR, Bengaluru) and Priyanka Sinha (ICTS-TIFR, Bengaluru)

ICTS-Networks Workshop “Challenges in Networks”

6-17 April 2026 ♦ Organizers — Siva Athreya (ICTS-TIFR, Bengaluru), Rajat Subhra Hazra (Leiden University, The Netherlands) and Frank den Hollander (Leiden University, The Netherlands)

Cold-Atom Based Quantum Simulators and Forthcoming Quantum Technology Applications

30 March-3 April 2026 ♦ Organizers — Rosario Gonzalez-Ferez (University of Granada, Spain), Pankaj Kumar Mishra (IIT Guwahati), Tapan Mishra (NISER, Bhubaneswar), Simeon Mistakidis (Missouri University of Science and Technology, USA), Rejish Nath (IISER Pune) and Hossein Sadeghpour (ITAMP, Harvard University, USA)

LECTURE SERIES

INFOSYS-ICTS CHANDRASEKHAR LECTURES

Optical Lattice Clocks: From Timekeepers to Spies of the Quantum Realm

30 March-2 April 2026 ♦ Ana Maria Rey (JILA, NIST and University of Colorado, Boulder, USA)

INFOSYS-ICTS RAMANUJAN LECTURES

The Different Faces of Higgs Bundles
17-19 February 2026 ♦ Nigel Hitchin (University of Oxford, UK)

KAAPI WITH KURIOSITY

How Networks Shape Our Lives

11 April 2026 ♦ Speaker — Frank den Hollander (Leiden University, The Netherlands) ♦ Venue — J. N. Planetarium, Bangalore

The Search for another Earth

22 March 2026 ♦ Speaker — Ravi Kumar Kopparapu (NASA) ♦ Venue — J. N. Planetarium, Bangalore

What Does It Mean to Be AI-Literate

22 February 2026 ♦ Speaker — Arvind Rao (University of Michigan, USA) ♦ Venue — J. N. Planetarium, Bangalore

When Fluids Misbehave

31 January 2026 ♦ Speaker — Samridhhi Sankar Ray (ICTS-TIFR, Bengaluru) ♦ Venue — J. N. Planetarium, Bangalore

ABDUS SALAM MEMORIAL LECTURE

Joining Forces: To Unify Nature and to Unite the World

23 February 2026 ♦ Speaker — Atish Dabholkar (The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste & Assistant Director General at UNESCO)

VIGYAN ADDA

LIGO-India: Expanding the Network of ground based Interferometric Gravitational Wave Detectors

9 April 2026 ♦ Speaker — Sendhil Raja S (Raja Ramanna Centre for Advanced Technology, Indore)

Ultracold Atoms as a Future Quantum Technology

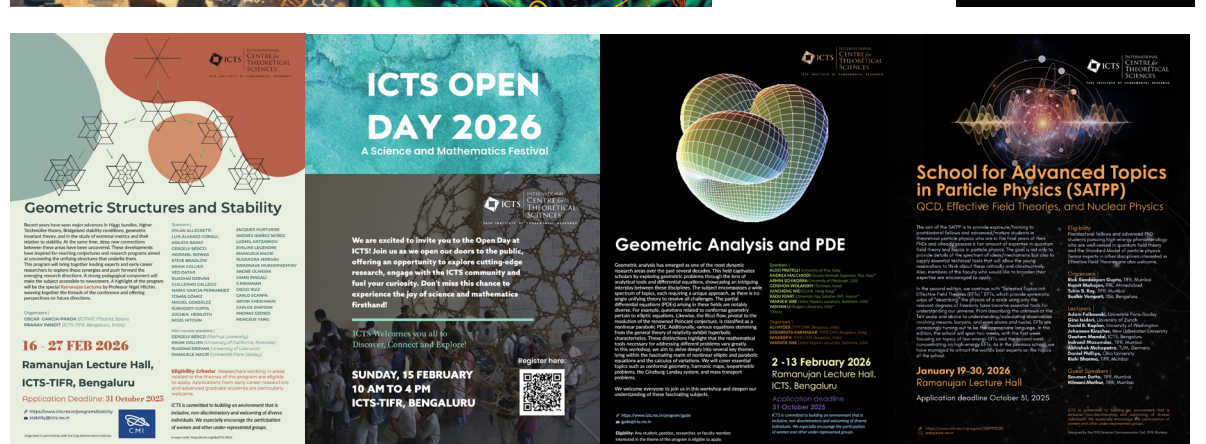
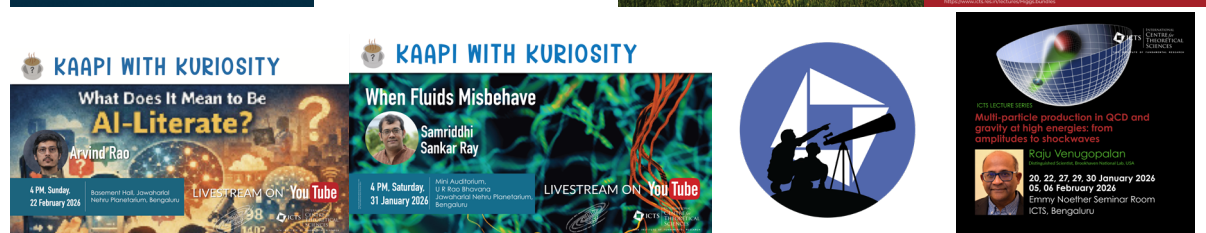
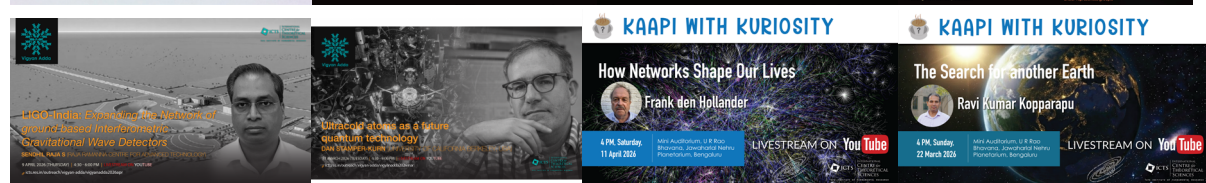
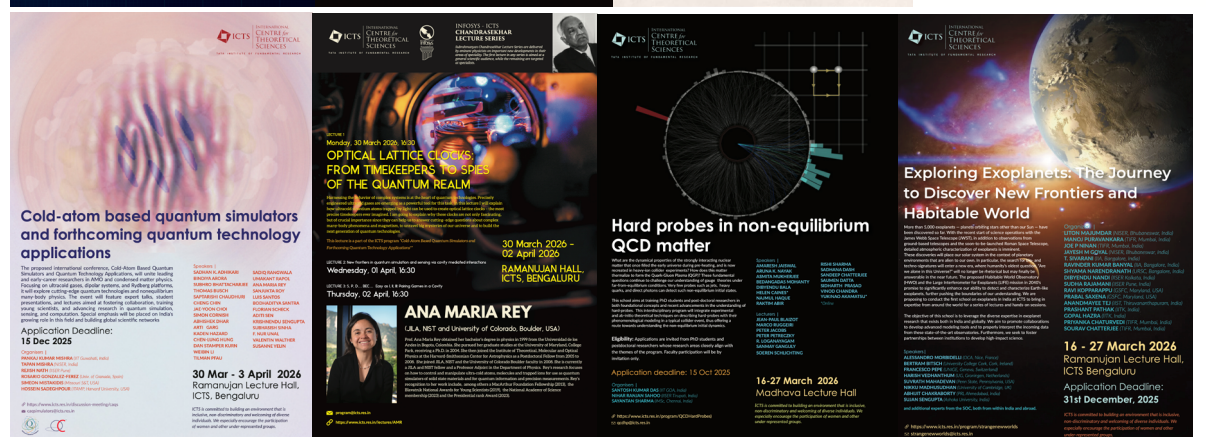
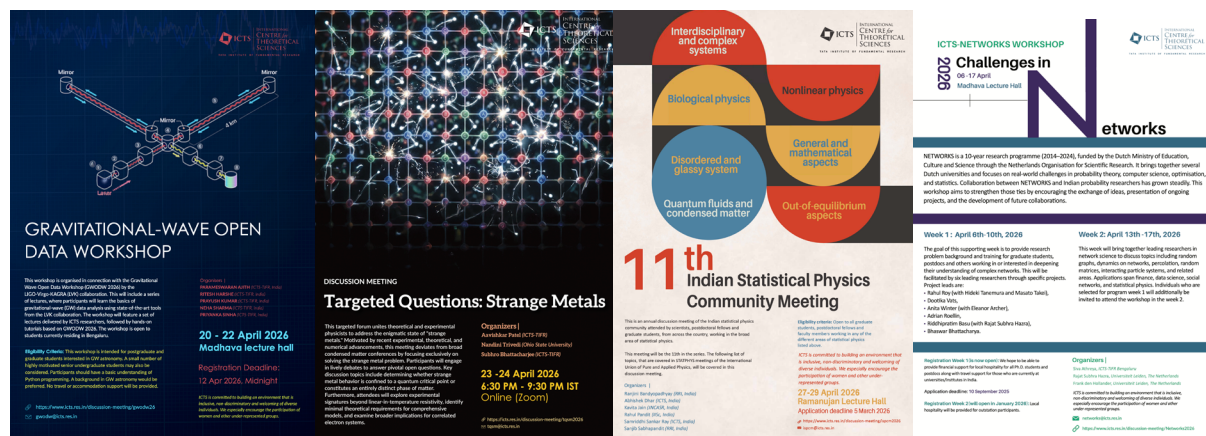
31 March 2026 ♦ Speaker — Dan Stamper-Kurn (University of California Berkeley, USA)

BETWEEN THE SCIENCE

ANUPAM KUNDU received the MATRICS Grant of the Anusandhan National Research Foundation (ANRF). He also joined the editorial team of Physical Review E.

ANIRBAN BASAK received the MATRICS Grant of the Anusandhan National Research Foundation (ANRF).

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



BETWEEN THE SCIENCE

RAGHU MAHAJAN received the 2026 Frontiers of Science Award. The award will be presented at the International Congress of Basic Sciences (ICBS), scheduled to take place in Beijing in August 2026.

STHITADHI ROY, together with Sumilan Banerjee (Indian Institute of Science, Bengaluru), was awarded an Advanced Research Grant (ARG) of the Anusandhan National Research Foundation (ANRF).

ASHOKE SEN was elected as an International Honorary Member of the American Academy of Arts and Sciences (AAA&S), one of the most prestigious academic institutions in the United States. His election has also been specially highlighted in the Academy's official announcement.

B. SURY was elected a Fellow of the Indian Mathematical Society (IMS). This is only the second year in which the IMS has inducted Fellows in recognition of outstanding contributions to mathematics.

ICTS graduate student RISHABH KAUSHIK has been selected for the prestigious Kavli Institute for Theoretical Physics (KITP) Graduate Fellowship Program.

ICTS graduate student BIKRAM PAIN has been awarded the prestigious Fulbright-Nehru Doctoral Research Fellowship by the United States-India Educational Foundation (USIEF). The fellowship will enable him to spend nine months at The University of Texas at Austin, where he will work with Matteo Ippoliti's group.

KRITHIN GOWTHAMAN, a former LTVSP student and now a PhD candidate at Yale University, worked on a project with Prof. Jim Thomas that led to a publication in the prestigious Journal of Advances in Modeling Earth Systems. Further, presented under the Atmosphere and Ocean Fluid Dynamics (AOFD) series, Krithin won the poster presentation award.

AKSHIT GOYAL, together with Amey Redkar (NCBS) and Veena Anil (UAS-GKVK), received a grant from DBT on climate-resilient agriculture. He was also awarded an associateship of the Indian Academy of Sciences.

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