

# STRIDES

Science | Technology | Research | Innovation | Developments

## Showcasing **New Initiatives** in S&T and Innovation

### EDITORIAL

As India faced a wet autumn, good news poured in for the scientific community. The first meeting of the Governing Body of the Anusandhan National Research Foundation was held with the focus to shape India's Science & Technology landscape. Establishment of Thematic Hubs and Technical Groups of the National Quantum Mission (NQM) was announced setting the pace for the acceleration of the Mission. BharatGen, a Multimodal Large Language Model Initiative was also launched to boost citizen's engagement through developing a suite of foundational models in language, speech and computer vision. The PARAM Rudra supercomputer was inaugurated at DST's institute SNBNCBS to further strengthen India's computing capacity.

Besides, school students across India were felicitated for their innovative S&T based ideas for solving day to day problems. The foundation stone of CO<sub>2</sub> to Methanol Pilot Plant was unveiled in Pune for advancement of CCU technology.

The month also witnessed several research achievements - a solution for diabetes, safe microbial surfactants for food industry, polymer useful for energy harvesting, quantum interferences in atomic medium useful for high precision quantum sensors as well as spotted radio jet from a dwarf galaxy found to be interacting with interstellar gas causing shock waves.

In the 100 days of the new government, the Department made a major impact Nationally and internationally taking forward its S&T achievements with full energy.

**Editor-In-Chief**  
Shri Sunil Kumar

### COVER STORY

#### PM chairs First meeting of Governing Body of Anusandhan National Research Foundation

Prime Minister Shri Narendra Modi chaired the first meeting of the Governing Board of Anusandhan National Research Foundation at his residence at 7, Lok Kalyan Marg earlier today. The meeting focussed on discussion about India's Science and Technology landscape and redesigning of research and development programmes.



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#### Inauguration of PARAM Rudra supercomputer at SNBNCBS by PM to benefit researchers in Eastern India

The inauguration of the PARAM Rudra supercomputer at SNBNCBS in Kolkata virtually by the Hon'ble Prime Minister brings high performance computing facilities to the Eastern Region, benefitting around 10-12 institutions and thousands of researchers working in this region.



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DEPARTMENT OF  
SCIENCE & TECHNOLOGY

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# Science Story

## Union Minister Dr. Jitendra Singh announced Establishment of Thematic Hubs and Technical Groups National Quantum Mission

“The National Quantum Mission is more than just a quantum initiative. It is a strategic investment in India’s future, laying the groundwork for economic growth, job creation, and technological leadership in the quantum-driven world,” said Union Minister Dr. Jitendra Singh at the Announcement Ceremony of Thematic Hubs and Technical Groups National Quantum Mission(NQM).



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## Launch of BharatGen: The first Government supported Multimodal Large Language Model Initiative

BharatGen, a pioneering initiative in generative AI designed to revolutionize public service delivery and boost citizen engagement through developing a suite of foundational models in language, speech and computer vision, was inaugurated in the virtual presence of Dr. Jitendra Singh, Union Minister in Delhi.



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## NQM Landmark: T-Hubs announced to Lead India’s Quantum Revolution

In a major step for India’s National Quantum Mission (NQM), selected premier institutions to establish Thematic Hubs (T-Hubs) were announced in the virtual presence of Dr. Jitendra Singh, Union Minister in Delhi.



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## Selected students of INSPIRE-MANAK competition felicitated for their innovative ideas

Secretary, DST, Prof. Abhay Karandikar highlighted the far-reaching societal, national, and global impact of nurturing curiosity and passion in young minds while speaking at the 11th NLEPC of INSPIRE- MANAK winners felicitation ceremony in New Delhi.



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## DST launches Swachhata Hi Sewa-2024 for promoting a sense of commitment towards cleanliness and sanitation

The Department of Science and Technology launched the Swachhata Hi Sewa on September 17, 2024 in the different buildings of the department and across all its autonomous bodies and subordinate offices of DST spread

across various parts of the country.

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## Decoding magnetic field-ionosphere relation in Mars can help future space missions

Researchers exploring the crustal magnetic field of Mars, found that crustal field effects are much stronger during day-time but almost non-existent during night-time and that daytime crustal field effects remain unaffected by seasons or Sun-Mars distance.

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## Foundation stone of CO2 to Methanol Pilot Plant for advancement of CCU technology unveiled

The foundation stone for India’s first of its kind CO2-to-Methanol pilot plant with an overall capacity of 1.4 Tons Per Day (TPD) was unveiled virtually by Prof. Abhay Karandikar, Secretary, DST, Government of India, at Thermax Limited premises in Pune, Maharashtra.



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## Experts discuss on AI-driven solutions that can improve healthcare

Medical professionals, engineers, scientists and other stakeholders discussed on ways to develop AI-driven solutions that will enhance patient care, optimize clinical processes, and ultimately improve healthcare outcomes at a day-long conference organised at the iHub Anubhuti IIITD Foundation of IIIT Delhi.

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# Science Story

## New research offers hope for millions of diabetic patients

Researchers have uncovered the potential of zinc oxide nanoparticles (ZON) to significantly enhance kidney function and combat diabetic nephropathy (DN), paving the way for new therapeutic approaches in managing diabetes-related kidney issues.

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## Safe microbial substitute can replace synthetic surfactants in the food industry

Cost-effective biosurfactants, a healthier substitute for synthetic surfactants useful for the food industry, can be produced using green substrates from agro-industrial waste.

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## Piezoelectric polymer nanocomposite developed can be used for energy harvesting

Researchers from CeNS, an autonomous institute of DST, in collaboration with scientists from CSIR-NCL, Pune have developed a security alert system based on piezoelectric polymer nanocomposite.

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## Quantum interferences in atomic medium facilitate light storing useful for high precision quantum sensors

Experimentalists have obtained a suitable optical response in an atomic medium that can be used to store light for a significant amount of time, facilitating designing applications for several quantum protocols for high precision quantum sensors, and more.

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## Radio jet from dwarf galaxy discovered interacting with interstellar gas causing shock waves

Evidence of interaction between a radio jet emitted from special kind of galaxies called Active Galactic Nuclei (AGN) and the surrounding interstellar medium at small spatial scale of about 10 parsecs has been detected for the first time in a dwarf galaxy situated at a distance of about 14 million light years.

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## Helping Indian Farmers Fight Pests: Bringing A Sustainable Pest-Control Pheromone Dispenser to Market

A newly developed sustainable pheromone dispenser with a controlled release rate could bring down costs of pest control and management. Pest control is an essential part of agriculture, as insects and other parasites left unchecked can quickly decimate an otherwise good crop.



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## Novel method of controlling defects in MOF-Based Supercapacitors can improve energy storage

A new method of introducing controlled defects in MOF-Based supercapacitors through laser irradiation, can help enhance performance of existing energy storage technologies.

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## Scientists take a major step towards unification of classical & quantum gravity

In a step forward to unify the classical theory of gravitation and quantum mechanics researchers, through their calculations have obtained an uncertainty relation induced from the noise of gravitons the hypothetical

quantum of gravity, an elementary particle that mediates the force of gravitational interaction.

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## Antidepressant drug can be repurposed for treating breast cancer

An antidepressant drug has the potential of being repurposed to provide cost effective solution for treatment of breast cancer.

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## JNCASR partners with HZL to scale up indigenous Zn-ion battery technologies

Indigenous Zn-ion battery technologies with new variant of zinc materials could soon facilitate low-cost grid-scale energy storage and other related applications.



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## What's new:

[Joint Call for project proposals 2024 Indo Danish research and innovation cooperation in the area of Cutting edge hydrogen technologies](#)

[Call for Proposals under WISE-SCOPE Fellowship](#)

[Indo-Russian Joint Research Call for Proposals 2024](#)

[India-Austria Joint Call for proposals 2024](#)

[DST-CETP Joint Call 2024](#)





# ANRF operationalised & poised to transform research & innovation towards Aatmanirbhar Bharat

**ANRF: A new dimension to the Indian S&T ecosystem**

- Enhancing research in the country
- Inspiring knowledge creation & research activities in nationwide institutions
- Encouraging scientific talent & capacity building
- Promoting collaboration among various stakeholders

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**Anusandhan National Research Foundation**  
to strengthen country's STI ecosystem

- Establish a culture of research & innovation in academia & R&D institutions
- Stimulate the latent potential of universities
- Bridge the gap between academia & industry through translational research

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**ANRF emphasizes on transparent and flexible R&D management**

- Flexibility in R&D funding
- Flexibility to utilize resources & in talent management
- Support for patent filing & article processing charges

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**ANRF poised to transform research & innovation towards Aatmanirbhar Bharat**

- ANRF was a key recommendation of NEP 2020
- Follow global best practices adopted in R&D
- Propel the nation to international leadership in research & technological advancements

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