

STRIDES

Science | Technology | Research | Innovation | Developments

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

EDITORIAL

The Department of Science and Technology (DST) prepares to bid good bye to 2024 with transformative steps and a mood of celebration of science to welcome the new year with new hope.

A total of 8 quantum startups have been selected under the National Quantum Mission (NQM) to make impactful contributions in their respective domains of quantum technology in alignment with NQM's vision of fostering cutting-edge research, innovation, and industrial applications to place India at the forefront of quantum technology on the global stage.

The UN-GGIM Asia-Pacific Conference on Geo-enabling Data Economy for Sustainable Development brought together leading experts, policymakers, and geospatial professionals from the Asia and the Pacific for discussing the importance of regional co-operation for strengthening geospatial capabilities.

The annual India International Science Festival, IISF 2024 was celebrated in Guwahati underlining mechanisms for transforming India into an S&T-driven Global Manufacturing Hub.

The yearlong celebration of S N Bose's contribution in quantum science also ended with the International Conference on Bose-Einstein Condensation, Superconductivity, Superfluidity & Quantum Magnetism organised at Kolkata giving way to the international year of quantum to be organised next year.

The ASEAN startup festival which was hosted by India brought together 100 startups from ASEAN member countries and India to exchange best practices and learn from each other.

It was a month that celebrated science in all its glory as a beacon for new beginnings on the horizon.

Editor-In-Chief
Shri Sunil Kumar

COVER STORY

UN-GGIM-AP conference underlines importance of regional co-operation for strengthening geospatial capabilities

Union Minister Dr. Jitendra Singh, highlighted the importance of regional collaboration in ensuring that best practices and use cases are exchanged to manage our resources effectively and responsibly through a video message at the UN-GGIM-AP Conference on Geo-Enabling Data Economy for Sustainable Development and 13th UN-GGIM-AP Plenary Meeting.



[Read More...](#)

Dr. Jitendra Singh announces selection of eight pioneering StartUps for support under National Quantum Mission and the National Mission on Interdisciplinary Cyber-Physical

In a significant step towards establishing India as a global leader in quantum technology, Union Minister Dr. Jitendra Singh announced the selection of eight pioneering StartUps for support under the Department of Science and Technology's newly formulated guidelines.



[Read More...](#)



विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF
SCIENCE & TECHNOLOGY

Inside the e-Newsletter

- Editorial
- Science Stories
- New Initiatives

Science Stories

Union S&T Minister highlights significance of S N Bose's contribution in quantum science at international conference

Union Minister Dr. Jitendra Singh highlighted the significant contribution of Prof. S N Bose in quantum science through a video message at the inaugural ceremony of the International Conference on Bose-Einstein Condensation, Superconductivity, Superfluidity & Quantum Magnetism organised at Kolkata.



[Read More...](#)

Operation Dronagiri launched along with GDI marking a milestone in the National Geospatial Policy

Secretary DST, Professor Abhay Karandikar launched the Operation Dronagiri, a pilot project under National Geospatial Policy 2022 to demonstrate the potential applications of geospatial technologies and innovations in improving the quality of life of citizens and ease of doing business, at FITT, IIT Delhi, New Delhi on 13 November, 2024.



[Read More...](#)

ANRF hosts Stakeholder Meeting on PAIR Program to strengthen research capabilities across institutions by fostering collaborative research & innovation

Faculty from institutions across the country participated in the first stakeholder meeting on the Partnerships for Accelerated Innovation and Research (PAIR) Program today at Bharat Mandapam, New Delhi organised by ANRF.



[Read More...](#)

National Workshop deliberated on strengthening India & Geospatial Ecosystem

Policymakers, experts and industry leaders came together to discuss ways to advance India's geospatial sector in alignment with the NGP 2022 at the National Workshop on Strengthening the Geospatial Ecosystem today at Bharat Mandapam, New Delhi.



[Read More...](#)

Magic recipes to create hydrogels from viral protein fragments can improve drug delivery

A new way discovered to create hydrogels using tiny protein fragments of just five amino acids from the SARS-CoV-1 virus, could help improve targeted drug delivery & reduce side effects

[Read More...](#)

Rajasthan village marches towards zero-waste through green technology interventions

Aandhi, a tiny village in the district

of Jaipur, and about 43 Km from Rajasthan's capital city of Jaipur is transforming itself to a zero-waste model with the help of green technology interventions.

[Read More...](#)

Anti-counterfeiting ink developed using luminescent nanomaterials can curb document duplication

A novel ink with enhanced security features developed with luminescent nanomaterials, can help stop counterfeiting in currency, certificates, branded goods and medicines.

[Read More...](#)

Model developed to understand equatorial ionospheric processes important for GNSS-based navigation

Scientists tracking a very narrow band of intense electric current in the earth's ionosphere called Equatorial Electrojet through ground-based magnetometers in India's southern tip have developed an empirical model to understand the equatorial electrodynamical processes that can impact satellite orbital dynamics, Global Positioning Systems and other satellite communication links as well as electrical power grids.

[Read More...](#)

IL-35-Mediated Immunotherapy: A New Treatment for Type 1 and Autoimmune Diabetes Mellitus

Researchers has discovered a specific protein IL-35 that protects the immune system by lowering particular immune cells that produce inflammatory chemicals, thereby reducing pancreatic cell infiltration, a key contributor in type1 diabetes and autoimmune diabetes mellitus.

[Read More...](#)



Science Stories

Study finds role of climate in shaping Indian history

Climate-driven vegetation changes played a crucial role in shaping human history in the Indian subcontinent over the last 2000 years, shows a new study which traced vegetation patterns in the Ganga plain from palaeoclimate records with the help of pollen and multiproxy studies.

[Read More...](#)

Nano material coating developed can increase efficiency of fertilisers by slowing down their release

A mechanically stable, biodegradable, hydrophobic nanocoating material can enhance the nutrient use efficiency of chemical fertilizers by tuning them for slow release, thereby limiting their interaction with the rhizosphere soil, water and microbes.

[Read More...](#)

Scientists discover a new fire-resilient, dual-blooming species of *Dicliptera* in the Northern Western Ghats of India

A new fire resilient dual blooming species experiences a burst of flowering triggered by the grassland fires and has an inflorescence structure that is rare in Indian species has been discovered in the Western Ghats which is known to harbour many yet-to-be-discovered species.

[Read More...](#)

Architect of pollen development & seed formation identified

Scientists have identified a novel gene that plays a crucial role in the development of stamens (male reproductive structure) including pollen grain and seed formation, in *Arabidopsis* flowering plants related to cabbage and mustard.

[Read More...](#)

New technology developed for unambiguous detection of HIV genome using tailored fluorogenic tests

Researchers have developed a technology for targeted better detection of HIV-genome derived G-Quadruplex (GQ), a four stranded unusual and characteristic DNA structure, using a fluorometric test, offering increased reliability of diagnosis. This diagnostic platform promises to significantly reduce false positives in HIV detection.

[Read More...](#)

Self-shocks turn crystal to glass at ultralow power density

Researchers have shown that utilizing shallow power, a crystalline material called indium selenide can "shock" itself to a glassy phase. This transformation lies at the heart of memory storage in devices like CDs and computer RAMs.



[Read More...](#)

New Microbe reverting sesame flowers to vegetative state identified

Researchers have identified a new microbe responsible for a peculiar disease that has been affecting the sesame fields of Midnapore in West Bengal.

[Read More...](#)

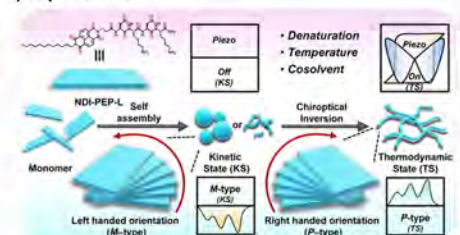
Veil of fiery gas revealed around the disc of Milky Way

Scientists may have finally hit upon the possible mysterious sources that have pumped heat and kept alive the fiery hot gas which has been recently detected but has remained unexplained, so far.

[Read More...](#)

Peptide-based tuneable piezoresponsive nanomaterials developed can help in energy harvesting and biodevice applications

A group of Indian researchers have developed different nanostructures by controlling the self-assembly pathway of the peptides.



[Read More...](#)

Research finds new route to Monkeypox detection

[Read More...](#)

Electrodeposition process developed for Ni-W alloy coatings can reduce friction

[Read More...](#)

Nanozymes can transform biomaterials for use in medicinal & biomedical applications

[Read More...](#)

What's new:

Mission for Advancement in High-impact Areas (MAHA) : EV-Mission

Inclusivity Research Grant (IRG)

Partnerships for Accelerated Innovation and Research (PAIR)



विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF
SCIENCE & TECHNOLOGY

Glimpses of India International Science Festival 2024, at IIT Guwahati



This e-newsletter created by the DST Media Cell brings you brief information on scientific achievements and activities supported by DST. Each brief, links to detailed information on DST website. If there is any DST supported popular science event which requires wider outreach please share it with us. We also welcome your feedback/suggestions at mediacell.dst@gmail.com

Editor-In-Chief
Shri Sunil Kumar



विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF
SCIENCE & TECHNOLOGY

[@IndiaDST](#) | [@IndiaDST](#) | [@India.dst](#) | [@IndiaDST](#) | dst.gov.in