

STRIDES

SCIENCE, TECHNOLOGY, RESEARCH, INNOVATION & DEVELOPMENTS

Showcasing DST achievements in S&T and innovation

Editorial

The month of festivities brought celebrations galore for the Department of Science and Technology (DST). India's future lies in innovative ideas and the future generation is the torchbearer of this movement. Many such ideas have sparked as S&T based solutions for day to day problems by students from more than 7 lakh schools across India. They were celebrated by the INSPIRE MANAK programme of the department through an exhibition displaying more than 400 select innovations. Some of them were from the remotest areas of the country and the children from these areas participated in the merriment with their achievements. Among them, 60 were felicitated and some will be supported for prototype development and beyond.

At exhibitions in IIT Kanpur and at the prestigious India Mobile Congress (IMC), the department revealed in the innovative cyber-physical technologies from the Technology Innovation Hubs (TIH) it has set up across the country under the NM-ICPS mission.

The department also celebrated the setting up of a world class precise location based service consisting of 1,000 Continuously Operating Reference Stations (CORS) across India. These stations were established by the Survey of India, (an attached institution of DST).

Some details of these joyous occasions have been featured in this time's newsletter along with news stories about some of the latest research & technology achievements. Overall, the festive month was worth its cheer for the department, boosting its energy to move ahead!

Editor-In-Chief
Dr Akhilesh Gupta

Cover Stories

Union Minister Dr Jitendra Singh says, the twin success stories of Chandrayaan-3 and DNA vaccine have placed India's scientific fraternity at global level

Speaking at 10th NLEPC of INSPIRE-MANAK felicitation ceremony in New Delhi, Dr Jitendra Singh said this is best time for India as far as Science, Technology & Innovations are concerned under the able leadership of Prime Minister Shri Narendra Modi.



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Union Minister Dr Jitendra Singh launches state-of-art latest National Survey Network the nationwide "Continuously Operating Reference Stations" CORS Network will be operated by the Survey of India



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DEPARTMENT OF
SCIENCE AND TECHNOLOGY
सत्यमेव जयते



SCIENCE STORIES

NM-ICPS mission led to a significant outcome at all levels, hubs key to technology translation: DST Secretary

The 3rd National Workshop of Technology Innovation in Cyber-Physical Systems (TIPS) highlighted the importance of the Technology Innovation Hubs (TIHs) set up by the under the National Mission on Inter disciplinary Cyber-physical Systems (NM-ICPS), in bringing about technology translation in the area.



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Knowledge exchange among hubs can translate cyber physical systems into new domains boosting sensors, communication: Experts

Experts highlighted that the application of cyber physical systems in industry and society can translate the technology into new domains, aiding its usage in areas like sensors and communication and the hubs can bring this about by exchanging best practices and learning from each other, at the 3rd National Workshop on Technology Innovation in Cyber-Physical Systems (TIPS) in Kanpur.

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Researchers synthesize highly crystalline pyrite at low

temperatures useful for fabricating high energy density supercapacitors

Researchers have synthesised highly crystalline pyrite FeS_2 at low temperatures and utilized them for fabricating electrochemical energy storage devices such as batteries and high energy density supercapacitors (Scs).



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Select students from schools across India display innovative S&T solutions at 10th National Level Exhibition and Project Competition (NLEPC) of INSPIRE

Secretary Department of Science and Technology, Prof. Abhay Karandikar inaugurated the 10th National Level Exhibition and Project Competition (NLEPC) of INSPIRE- MANAK at Indira Gandhi Indoor Stadium, Delhi, on 9 October 2023, where the innovative ideas of 441 select students from schools across the country were displayed.



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FIST scheme meeting discusses ways of revamping to foster international linkages and

collaborations

The advisory board meeting of the FIST scheme of DST discussed ways of revamping scheme to emphasise fostering international linkages and collaborations to bridge gaps and facilitate the acquisition of best practices, Intellectual Property Rights (IPR) generation, and the dissemination of knowledge.



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Cutting-edge quantum-technology backed green hydrogen production unveiled to power a green future

A new high throughput quantum backed green hydrogen production technology could boost the green hydrogen production in bulk.

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Magnetic-Stress as a new chauffeur of metal-insulator transition

The mystery behind the peculiar metal-insulator transition exhibited by certain materials under external stimuli such as temperature, pressure, electric fields has been decoded by scientists, paving the way towards designing functional materials and devices like sensors and actuators.

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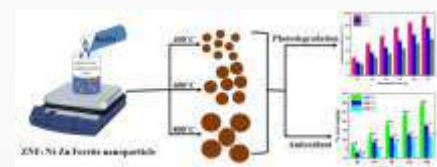
Cloud parameters using a ground-based airglow imager indicate large shift in monsoon rainfall pattern

Estimation of cloud speed and wind pattern over Kolhapur in Maharashtra, during the months of March to May, from the year 2016 to 2020 have revealed a change in pre-monsoon cloud fraction and direction of its propagation indicating a large shift in monsoon rainfall pattern.

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Nanocrystalline materials with unique microstructural, optical and magnetic properties synthesized

Scientists have synthesized nanocrystalline Ni-Zn spinel ferrites (metal oxide with tetrahedral structure) with unique microstructural, optical and magnetic properties that can be used for data storage devices, tuning physical properties of materials as well as in photocatalytic and antioxidant applications.

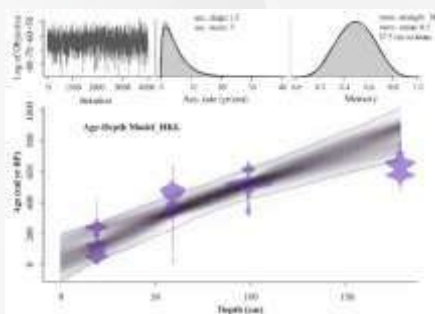


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Little Ice Age (LIA) was wet (moist) and was not uniformly cold and dry

A new study of the Little Ice Age (LIA), a global climatic event, between CE 1671-1942, which shows significant variations of rainfall patterns during that age, challenges the conventional notion of a uniformly cold and

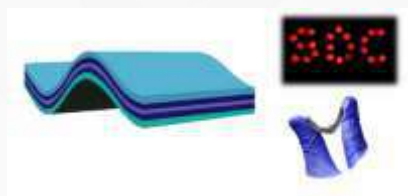
dry climate with reduced monsoon rainfall during the LIA.



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Flexible supercapacitors with efficient energy storage developed using conducting polymer & nanostructured inorganic oxide hybrids

A hybrid electrode-based flexible symmetric supercapacitor that shows excellent electrochemical properties, cycle stability and high energy density could bring a future solution for efficient energy storage.



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New Laboratory of Advance Synthesis and Characterization develops probe stations for universities to probe opto-electronic properties in range of materials

A new Laboratory of Advance Synthesis and Characterization (LASC) at Gujarat is developing LASC probe stations for universities in India and abroad for investigation of opto-electronic properties in a wide range of materials, including semiconductors, thin films, LEDs,

and solar cells.

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A new genus of anaerobic lignocellulose-degrading bacteria with hydrogen production capability found in a hot spring from Maharashtra

A new genus of anaerobic lignocellulose-degrading bacteria found in the hot spring of Aravali, located in Ratnagiri district of Maharashtra which has the ability to produce hydrogen gas as a byproduct of its metabolism could be a source of clean and renewable energy.

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Special Campaign 3.0 in full swing to achieve the targets of Department of Science and Technology (DST)

Department of Science and Technology has been conducting the Special Campaign 3.0 on Swachhta in the different buildings of Department and across all its Autonomous Bodies and subordinate offices of DST spread across various parts of the country.

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Whats New

[DST-DAAD Call 2023](#)

[Call for proposal under the Hydrogen and Fuel Cell \(HFC\) 2023 program](#)

[Call for inviting Applications for DST-STI Policy Fellowship](#)

10th National Level Exhibition and Project Competition (NLEPC) of INSPIRE-MANAK



Celebrating NM-ICPS Technologies



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This e-newsletter created by the DST Media Cell at SERB 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

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