

STRIDES

Science, Technology, Research, Innovation & DEvelopmentS

BRINGS NEWS ON S&T DEVELOPMENT FROM DST SUPPORT AND BEYOND

EDITORIAL

FROM HEAD OF DST MEDIA CELL

Paving the way for India's era of scientific excellence without borders, the Science Technology and Innovation Policy STIP 2020 spread out its wings to bring in the perspectives of the scientific diaspora in its formulation. As Hon'ble Minister for Science & Technology, Earth Sciences and Health and Family Welfare Dr. Harsh Vardhan interacted with the excellent Indian brains working in some of the top scientific institutions over the world, the policy was enriched with suggestions. Such inputs could strengthen collaborations that could help India emerge as a global leader in science.

Acknowledging the huge untapped potential of the diaspora, Dr. Harsh Vardhan highlighted that the scientific diaspora contributes a lot in both internationalization of science and technology development and boosting the country's technology intensity.

Medical equipment found new versions with COVID 19 protections for doctors, which could be extrapolated for any infections that may come our way. Among global recognitions for scientific excellence, India's AI supercomputer Param Siddhi was placed 63rd among the top 500 most powerful non-distributed computer systems in the world as the Swarna Jayanti, and the Inspire fellows brought hopes for fresh aspirations in new and emerging areas. This issue highlights how the Wadia Institute of Himalayan Geology is exploring Himalayan geology, natural resources, and climate change for people's benefit.

—DR AKHILESH GUPTA, EDITOR-IN-CHIEF

COVER STORY



DR. HARSH VARDHAN HOLDS FIRST OF ITS KIND POLICY CONSULTATIONS WITH INDIAN SCIENTIFIC DIASPORA ON STIP-2020 IN A VIRTUAL MEETING

Union Minister for Science & Technology, Earth Sciences,

and Health & Family Welfare, Dr. Harsh Vardhan, chaired the first of its kind policy consultation with the highly-skilled Indian diaspora to facilitate channels for them to contribute to India's STIP 2020. The consultation meeting was attended by Principal Scientific Adviser to the Government of India, Professor K. Vijay Raghavan; Secretary Department of Science & Technology, Professor Ashutosh Sharma; Healthcare-Biotech Consultant, Dr Vijay Chauthaiwale; Additional Secretary, Ministry of External Affairs Ms. Renu Pall, and several dignitaries among the Indian Scientific Diaspora from across the globe.

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PROGRAMME TO PROMOTE OPPORTUNITIES FOR WOMEN IN EXPLORATORY RESEARCH LAUNCHED BY DR HARSH VARDHAN

A programme for Promoting Opportunities for Women in Ex-

ploratory Research was launched by Minister for Science & Technology, Health and Family Welfare and Earth Sciences Dr Harsh Vardhan, to help bridge gap of gender disparity in the field of Science and Technology. This will include a fellowship called SERB – Power Fellowship and a SERB – Power Research Grants for women scientists.

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From Head of DST Media Cell Covid News Highlights
Cover Story DST Overseas

INSIDE THE E-NEWSLETTER

Popular Science Stories
New Initiatives

Meet the Scientist
Featured Institution

COVID NEWS HIGHLIGHTS



DST is working for the fast-changing future needs of the country: DST Secretary

Secretary, DST Prof Ashutosh Sharma, highlighted at a webinar organized to celebrate the 50th year of DST that with huge emphasis on innovation, startups, creating new jobs and wealth by using science, technology, and innovation, DST is working for the future needs of the country which are changing at a faster pace and scale.

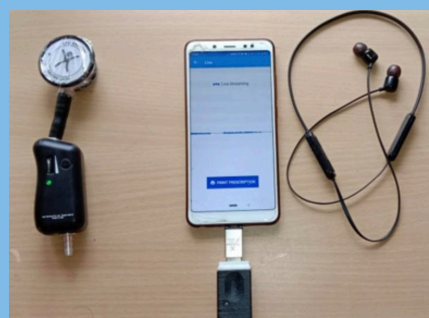
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COVID 19 on downtrend, but we need to be more careful in next 3-4 months: DST Secretary

COVID 19 is on the downtrend, Prof Ashutosh Sharma, Secretary, DST, pointed out while praising the efforts of all sectors in COVID 19 time that helped India to take steps towards being atmanirbhar in medical field. He added that, however, in view of the number of festivals in the coming months, there is a strong possibility of transmission.

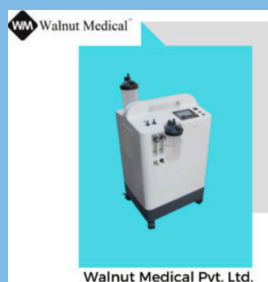
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Startups offering medical equipments & aids catering to doctors needs during pandemic in the new normal

Can medical equipment be designed in a manner that can keep doctors safe and cater to unique emergency requirements of the COVID-19 crisis? Several start-ups supported by DST are showing the way with stethoscopes that doctors can use without touching the patient, oxygen concentrator that can help the hospitals generate their in-house oxygen and portable and app controlled IoT based ventilator system.

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DST OVERSEAS



Young scientists should innovate, patent, produce & prosper to lead our countries towards faster development: Dr. Harsh Vardhan

Union Minister for Science and Technology and Earth Sciences, Health and Family Welfare underlined that the motto of the young scientists should be to Innovate, Patent, Produce and Prosper, and these four steps will lead our countries towards faster development at the inaugural address of the first-ever Shanghai Cooperation Organization (SCO) Young Scientist Conclave.

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NEW INITIATIVES

- ▶ GATI: Call for Expression of Interest from Universities and Research Institutions to Participate in Pilot
- ▶ Call for Proposal for DST-NGP Summer/ Winter School in Geospatial Science and Technology sub-scheme under National Geospatial Programme (NGP)



India's AI supercomputer Param Siddhi 63rd among top 500 most powerful non-distributed computer systems in the world

Param Siddhi, the high performance computing-artificial intelligence (HPC-AI) supercomputer established under National Supercomputing Mission (NSM) at C-DAC has achieved global ranking of 63 in TOP 500 most powerful non-distributed computer systems in the world released on 16th November 2020.

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SSR to create new interface between science and society: DST Secretary

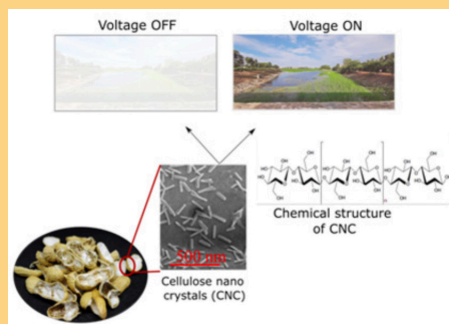
Secretary, DST, Professor Ashutosh Sharma, highlighted that a policy on SSR would be in place in the next few months to create new interfaces between science and society, at a webinar organised on the occasion of World Science Day.

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Indian scientists develop smart screens from discarded groundnut shells

Indian scientists have developed an eco-friendly smart screen from groundnut shells that could help not only in preserving privacy but also in energy conservation by controlling light and heat passing through it and reducing air conditioning load.

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SwarnaJayanti Fellow's multi-pronged strategy to enhance fungal disease tolerance in rice may ensure food security

Globally, significant amount of rice production is lost due to various fungal diseases. Sheath blight disease caused by a fungal pathogen *Rhizoctonia solani* results in yield loss of up to 70 percent. A multi-pronged approach to enhance tolerance of rice to sheath blight diseases may soon be on the way.

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▶ Saffron bowl of India extends to the North East

▶ 360° video-immersive experience in circular dome & digital exhibits inaugurated at Rajghat

▶ Highly conducting, stable carbon cathode could bring down production costs of next-generation solar cells

▶ Geological structure that triggers large concentration of micro and moderate earthquake near Kumaon Himalaya unearthed

▶ First indigenous Petcoke-based high energy supercapacitor developed by ARCI would benefit EV industry

▶ Self-cleaning non-toxic colours developed by CeNS can brighten up textiles, automobiles, and decorations

▶ Indian astronomers collaborated with Nobel laureate on Thirty Meter Telescope Project

▶ An inhalable formulation could provide better treatment for TB & tackle AMR

▶ Major clue unearthed to design novel advanced materials with ultralow thermal conductivity useful for thermoelectric materials

▶ Desalination membranes using graphene oxide liquid crystals may soon help bring down costs of clean water access

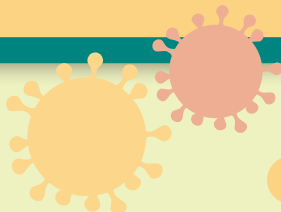
▶ Asymmetry deciphered in supernova interaction with stellar environment can provide clues about their structure & chemistry

▶ The chirp of the crickets may soon be their species I-cards

▶ Peculiar pair of stars in a binary system found in a galactic core gives clues to evolution of unusual stars

▶ Solar Physicists study of plasma blobs after biggest solar flare of the decade could shed light mechanism of such flares

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MEET THE SCIENTIST

DR. KALACHAND SAIN



Dr. Kalachand Sain, Director, Wadia Institute of Himalayan Geology (WIHG)

Dr. Kalachand Sain's research focus includes delineation & assessment of gas-hydrates, imaging sub-volcanic sediments, the evolution of sedimentary basins, delineation of collisional/subduction plate geometries, understanding geotectonic & earthquake processes, and advanced interpretation through delimitation of subsurface geologic features from 3D surface data. His expertise lies in seismic traveltimes tomography, attribute characteristics, full-waveform inversion, amplitude-versus-offset modeling, prestack depth migration, rock physics modeling, Machine Learning, etc.

As Director of WIHG, Dr. Sain introduced a 5-year mission-mode project on 'Characterization and Assessment of surface and subsurface Processes in the Himalaya' (CAP-Himalaya) to provide implications on seismogenesis; geodynamics; paleoclimates and biotic events; geo-hazards (due to earthquakes, landslides, lake outburst floods); and natural resources (Glaciers, rivers, minerals, hydrocarbons, and geothermal).

He established a Centre of Excellence for seismic Data Processing/Interpretation to provide solutions to industry-challenges and signed MoU between ONGC and WIHG with a view to make the institute self-reliant with regard to ECF generation. Collaborations were established with a Private Energy Limited to convert geothermal green energy into electrical energy in Uttarakhand. He has received several honours and awards like Raman Fellowship, DST's BOYSCAST Fellowship, Krishnan Gold Medal & Decennial Award. He is a fellow of several scientific associations like INSA, NASI, APAS, and TAS.

FEATURED INSTITUTION



Exploring Himalayan geological dynamics, natural hazards, climate variability, and natural resources

The Wadia Institute of Himalayan Geology (WIHG) at Dehradun has acquired a significant place in the national and global community exploring earth science aspects of the Himalaya. The sui generis nature of this institute possesses nearly all state-of-the-art earth sciences equipment under one roof that provides flawless data to whole geosciences academia nationwide on a range of areas like settling the stratigraphy of Himalaya, landslide and flood hazards, river landscape of Himalayas, as well as the seismic network.

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