

STRIDES

Science, Technology, Research, Innovation & DEvelopmentS

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

EDITORIAL

The month of February brings one of the most important days for science in India, the National Science Day celebrating the Raman Effect that brought the Nobel Prize to Sir C V Raman, the first Nobel laureate in science from India.

The day was celebrated with the culmination of a week-long programme – Vigyan Sarvatra Pujiyate consisting of lectures, exhibitions, science shows, and numerous science popularisation activities across the country under the theme Integrated Approach in S&T for Sustainable Future.

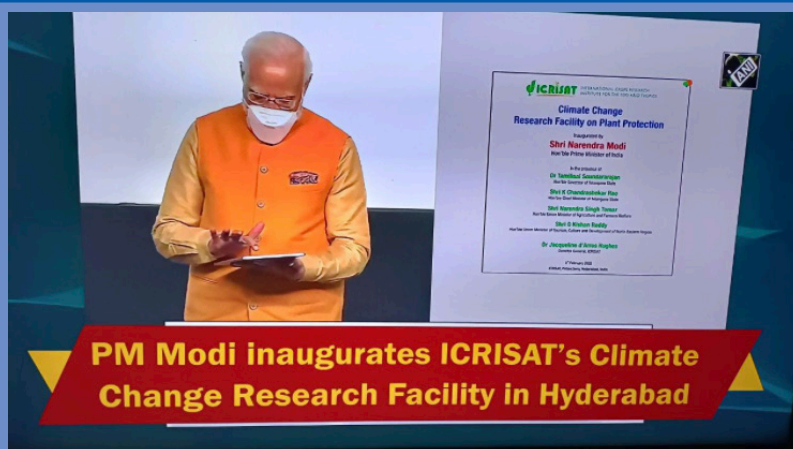
The Climate Change Research Facility at the International Crop Research Institute for Semi-Arid Tropics (ICRISAT) was inaugurated this month by the Prime Minister to work on making agriculture more sustainable and climate-resilient, and the centre which brought together and boosted the research that ICRISAT was already carrying has already produced a major publication.

The month also triggered possibilities of major collaborations between India and Singapore at the annual DST- CII tech summit. Besides this, an efficient method for hydrogen production, a next-generation probiotic that provides hope for longevity and healthy aging, efficient and durable solar cells by tuning the length and porosity of nanorods, artificial Intelligence-based tools for finding habitable planets, and major climate change findings were witnessed.

The month's newsletter also features the Indian Academy of Science, the second of the three national science academies in India established by Sir C V Raman.

—DR AKHILESH GUPTA, EDITOR-IN-CHIEF

COVER STORY



PM Modi inaugurates ICRISAT's Climate Change Research Facility in Hyderabad

DST supported Climate Change Research Facility at ICRISAT inaugurated by PM to work on making agriculture more sustainable and climate-resilient

The state of the art climate change research facility at ICRISAT, established with the support of the Climate Change Program of the DST, and inaugurated by Prime Minister Narendra Modi on February 5, 2022, will strengthen the global efforts to alleviate climate change impacts on agriculture and food security.

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Union Minister for S&T Dr Jitendra Singh says, mentoring young talent is the best investment for India @2047

Union Minister of State (IC) Science & Technology, Dr Jitendra Singh said, that mentoring young talent is the best investment for India @2047. He said, young scientists with 25 active years ahead have a crucial role to play in the roadmap for the next 25 years when India celebrates 100 years of independence.

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Editorial

Cover Story

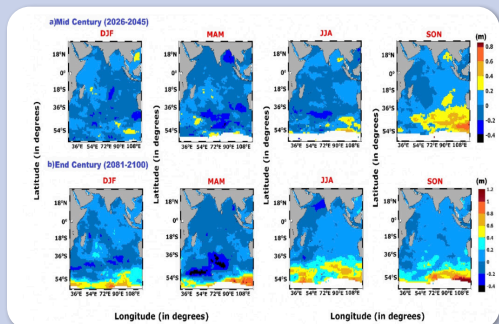
Popular Science Stories

New Initiatives

INSIDE THE E-NEWSLETTER

Meet the Scientist

Featured Institution



High wave activity in regions over Bay of Bengal, South China Sea, & South Indian Ocean can pose threat for coastal communities

A recent study conducted by Indian Scientists has indicated that regions over Bay of Bengal, South China Sea, and South Indian Ocean can experience higher wave activity in the future, posing serious threat for coastal communities in the region.

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Indian scientists develop efficient and durable solar cells by tuning the length and porosity of nanorods

Indian Scientists have devised a new process for increasing the efficiency and stability of Titanium dioxide (TiO₂) nanorods based on Perovskite Solar Cells (PSC). It will help develop solar cells with stable light-harvesting active layer.

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Easy collection and processing of pongamia through motorised dehusking & oil extraction machines brings confidence to boost biofuel production

The participation of the farming community in feed stock production plays an important role in developing

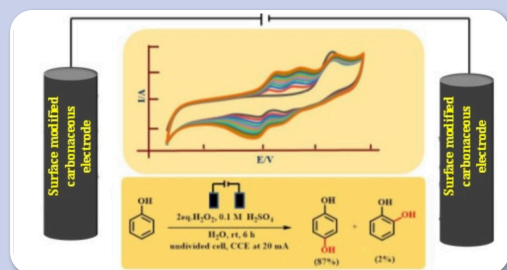
strategies for biofuel production thus will help fulfill the target of 175 GW of non-fossil fuel of Prime Minister Shri Narendra Modi.

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New study suggests increase in warming in high altitude Himalayas due to water vapour

A recent study has shown that water vapour exhibits a positive radiative effect at the top of the atmosphere (TOA), suggesting an increase in overall warming in the High Altitude Himalayas due to it.

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New method can efficiently transform phenol to a key ingredient for manufacturing food preservatives, pharmaceuticals & polymers

Indian researchers have found that electrolysis using surface-modified electrodes for efficient large-scale transformation of phenol to 1,4 hydroquinone used as intermediate in the manufacturing of food preservatives, pharmaceuticals, dyes, polymers.

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ARCI Scientists develop energy-efficient method for hydrogen production with less carbon footprint

Indian Scientists have developed a method to produce hydrogen with high purity (99.99%) from methanol-water mixture at ambient pressure and temperature that uses only one-third of the electrical energy required in water electrolysis.

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Indian scientists develop a next-generation probiotic that provides hope for longevity and healthy aging

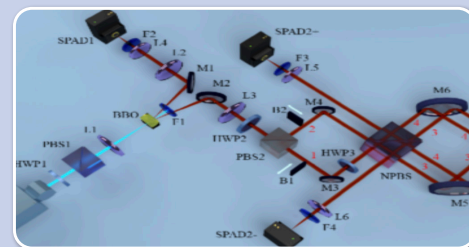
A team of Indian Scientists has recently identified the next-generation probiotic bacterium Lactobacillus Plantarum JBC5 from a dairy product that showed great promise in promoting healthy aging.

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Grassroots innovator from Karnataka popular as tamarind maniac selected for Padma Shri for 2022

Shri Abdul Khader Nadakattin, a serial grassroots innovator from Dharwad, Karnataka, is amongst the 107 Padma Shri awardees announced for the year 2022 in the Others (Grassroots Innovation) category.

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Einstein's idea of reality experimentally proven decisively wrong by Indian



POPULAR SCIENCE STORIES



scientists, paving the way for more secure information transfer

A team of scientists from Raman Research Institute (RRI), an autonomous institute of the Department of Science and Technology, have successfully addressed this challenge.

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New artificial Intelligence-based tools can help finding habitable planets

Astronomers from the Indian Institute of Astrophysics, an autonomous institute of DST, along with astronomers from BITS Pilani, Goa campus have devised a new approach -- an anomaly detection method -- by which they can identify potentially habitable ones with a high probability.

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« Focus on collaborating to gain from lead expertise of countries: DST Secretary

« Woman scientist from Chennai granted patent for green technology producing medicinally important compound

« Novel tools for deciphering mechanisms associated with learning and memory developed by Indian Scientists

« India to have two National Centres

of Excellence in Carbon Capture & Utilization at IIT Bombay & at JNCASR, Bengaluru, supported by DST

« Swarnajayanti fellow's work to pave way for developing strategies to manage and treat attention disorders

« Swarnajayanti awardee from Bangalore working on materials that can make computers more efficient

« SwarnaJayanti Fellow's work may help understand & compute the entropy of Black Hole systems discovered by Stephen Hawking

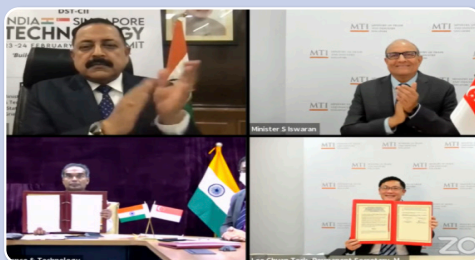
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INTERNATIONAL

India, an attractive hub for foreign investments in manufacturing sector, is on a rising trajectory of innovation: Dr. Jitendra Singh

Union Minister of State (IC) Science & Technology, Dr. Jitendra Singh, highlighted that India is now an attractive hub for foreign investments in the manufacturing sector and is on a continuous rising trajectory of innovation, at the DST-CII Technology Summit.

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Experts from India & US discuss challenges & opportunities to combat Climate Change through technology-led Carbon Capture and Utilisation solutions.

Experts from India and US discussed the challenges and opportunities to combat climate change through technology-led Carbon Capture and Utilisation solutions at the Indo-US Scoping Workshop on Carbon Capture held on 21st January 2022, jointly organized by DST India and DoE USA.

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NEW INITIATIVES

- Seeking full proposals under 5th BRICS call from shortlisted Project Investigators (2nd Stage submission)
- Joint Call for project proposals 2022 Indo-Danish research and innovation cooperation in the area of "Green fuels including green hydrogen"
- IGSTC 2 plus 2 Call 2022 on the thematic areas Waste to Wealth and Sustainable Packaging
- DST- DFG joint call on International Research Training Groups (IRTG) 2022

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MEET THE SCIENTIST

PROF. UMESH WAGHMARE

PRESIDENT, INDIAN ACADEMY OF SCIENCES



Professor Umesh Waghmare is known for his work in materials science which transcends the boundaries of physics, chemistry, and engineering. It involves the use of quantum physics and computer simulations to determine electron-mediated interactions in a solid and the development of material-specific models to predict its multi-scale structure and properties.

Through close collaborations with experimentalists, his work has resulted in fundamental understanding of structural phase transitions, mechanical behavior and functional properties of materials, thermoelectrics, topological insulators, ferroelectricity, and superconductivity at nano-scale, and materials for energy and environment. He has contributed to research at GE, Boeing, Procter and Gamble, Tata Research, Design and Development Centre, and Shell.

With a B Tech (with institute silver medal) in Engineering Physics from IIT, Bombay, and a Ph.D. in applied physics from Yale University, he worked as a post-doctoral research associate in the Physics Department at Harvard University before joining Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) in 2000. At present, he is Professor at JNCASR, Dean-Faculty, and a JC Bose National Fellow. He is also a Distinguished Adjunct Professor at Temple University, Philadelphia.

Professor Umesh Waghmare is an Associate Editor of Pramana Journal of Physics and of NanoScale. He has been elected Fellow of the three science academies of India and the Indian National Academy of Engineering and has been regularly involved in Science Outreach in Karnataka and Uttarakhand.

FEATURED INSTITUTION



Indian Academy of Sciences: Promoting progress & cause of science

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