

STRIDES

Science, Technology, Research, Innovation & DEvelopments

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

EDITORIAL

FROM HEAD OF DST MEDIA CELL

As the festive season progresses, the Department of Science of Technology (DST) signaled new beginnings with the inauguration of the new building of the Department.

It symbolized not only the de-silosation of workplaces but also the march of India from the state of deficiency to self-sufficiency. This is because the old building in the place that once stored imported foodgrains later contributed significantly to making India Atmanirbhar through science and technology and also in evolving it into a leading exporting country.

The season also witnessed S&T developments to convert food waste to non-toxic activated carbon. Scientists from DST autonomous institutions found ways in which galaxy flybys changed structure of galaxies like the Milky Way, better surfaces for hip and knee implants, and traced how dust transported from NW India, Pakistan & Arabian Sea was main aerosol sources in central Himalayan region all of which are highlighted in this issue of the newsletter.

The newsletter captures the appreciation that India received in the international fora as BRICS countries gave unanimous support to India's draft BRICS Innovation Action Plan 2021-2022. It also features the North East Centre for Technology Application and Reach and its creation of the saffron bowl in India's North East.

—DR AKHILESH GUPTA, EDITOR-IN-CHIEF

COVER STORY



NEW STATE OF THE ART BUILDINGS INAUGURATED AT TECHNOLOGY BHAWAN CAMPUS, NEW DELHI

Union Minister of State (Independent Charge) Science & Technology; Minister of State (Independent Charge) Earth Sciences Dr Jitendra Singh said that De-Silosation not only of work but also workplaces needed for better and cost-effective outcomes. Inaugurating the New State of the Art Building constructed at Technology Bhawan campus for DST and DSIR in New Delhi on the auspicious occasion of Navratri, Dr Jitendra Singh said, the long journey has found a new milestone on India's 75th Independence Day Celebrations.

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From Head Of DST MEDIA CELL
Cover Story

Popular Science Stories

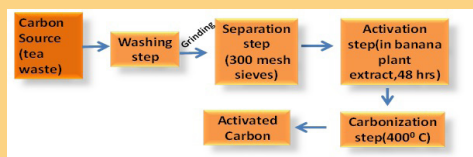
INSIDE THE E-NEWSLETTER

International Stories
New Initiatives

Meet the Scientist
Featured Institute



Synthesis of Activating Agent from Banana Plant



Tea & banana waste used to develop non-toxic activated carbon

A team of scientists have used tea and banana waste to prepare non-toxic activated carbon, which is useful for several purposes like industrial pollution control, water purification, food and beverage processing, and odour removal.

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Model for optimising topography can make better surfaces for hip and knee implants

Indian Scientists have developed analytical models that can predict topography of electrical discharge textured (EDT) surfaces, aiding their customisation for improving hip and knee implants.

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Novel composite materials developed for high-temperature battery and supercapacitors

Indian researchers have developed a thermally stable solid electrolyte for lithium-ion batteries for energy storage that promise application for a wide range of temperatures from 30-500 degrees Celsius.

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Unique technology for direct generation of Hydrogen from agricultural residue developed

Indian researchers have developed a unique technology for direct generation of Hydrogen from agricultural residue.

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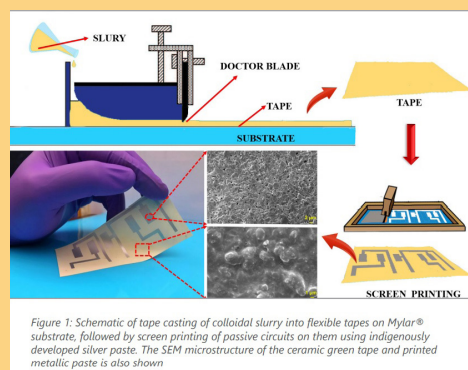


Figure 1: Schematic of tape casting of colloidal slurry into flexible tapes on Mylar® substrate, followed by screen printing of passive circuits on them using indigenously developed silver paste. The SEM microstructure of the ceramic green tape and printed metallic paste is also shown

New toxic-free superior multilayer technology that packages together electronic components can help countrys strategic sectors

Indian Scientists have indigenously developed toxic-free and superior multilayer technology that packages together electronic components like resistors, capacitors to produce multilayer circuits.

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Dust transport from NW India, Pakistan & Arabian Sea main aerosol sources in central Himalayan region

Mineral dust, biomass burning, secondary sulfate, secondary nitrate from northwest India and Pakistan, polluted cities like Delhi, the Thar Desert, and the Arabian Sea area, and long-range transported marine mixed aerosols are the main sources of aerosols in the central Himalayan region, shows a study.

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Scalable synthesis method developed of nanocrystals with bright emission colours useful for LED

Indian researchers have developed a method that can help large scale synthesis of a special class of semiconductor nanocrystals.

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New biodegradable polymer fabricated using guar gum, and chitosan has high potential for packaging material

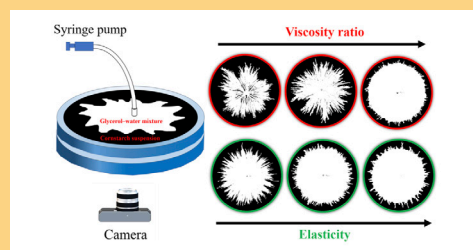
A team of Indian scientists have developed an environmentally friendly, non-toxic, biodegradable polymer using guar gum and chitosan, both of which are polysaccharides extracted from guar beans and shells of crab and shrimps.

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JNCASR Scientist developing innovative strategies to make high-performance thermoelectrics materials wins Shanti Swarup Bhatnagar Prize

Professor Kanishka Biswas, currently working as an Associate Professor at JNCASR, an autonomous institute of DST, Government of India, has received the prestigious Shanti Swarup Bhatnagar Prize in Chemical Science for Science and Technology (2021) for his discoveries in the field of solid-state inorganic chemistry and thermoelectric energy conversion.

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Tuning viscosity and elasticity of fluids can make transport and processing in food industries more efficient

Scientists have found a new method to improve the transportation of fluids like chocolates, lotions, sauces by tuning the viscosity and elasticity of fluids during materials processing in the food and personal care products industries.

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Dignitaries stress on human resource development in diverse areas for Atmanirbhar Bharat

through S&T

Dignitaries stressed on training young minds in the right direction as well as in diverse areas for realizing the dreams of Atmanirbhar Bharat at the second Month's programme of Vigyan Utsav centered on human resource development to celebrate the Azadi Ka Amrit Mahotsav.

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Technology to enhance biogas production of Fat-rich sludge from dairy industry developed

Indian Scientists have developed a novel high-performance bioreactor system integrated with sustainable pre-treatment process for enabling anaerobic digestion of complex fat-rich sludge from dairy industry.

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▶ Galaxy flybys can change the structure of galaxies like the Milky Way

▶ Trans- Himalayan region becoming one of the promising astronomical sites globally

▶ SCTIMST Scientist working on chronic disease epidemiology and complex public health interventions wins Shanti Swarup Bhatnagar Prize

▶ Seismic pattern in Mishmi Range in India's NE tip which witnessed the largest earthquake different from western & central Himalaya

▶ Collection of scientific developments in energy storage expected to reach pilot plant/ application launched

▶ Electronic polymer based low-cost sensor developed to detect explosives rapidly

▶ Development of bamboo-based technology & value-added products improving life and livelihood in NE

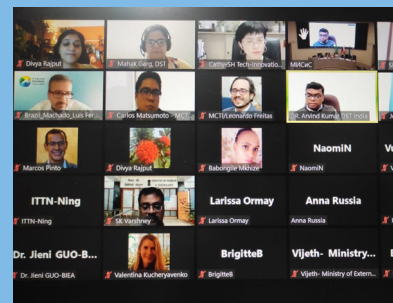
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INTERNATIONAL STORIES

BRICS countries give unanimous support to India's draft BRICS Innovation Action Plan 2021-2024

Experts from scientific ministries and innovation stakeholders from BRICS countries discussed Innovation BRICS network (iBRICS), BRICS Technology Transfer Centre, as well as BRICS Innovation Action Plan 2021-2024 at the 5th BRICS Science Technology Innovation Entrepreneurship (BRICS-STIEP) Working Group meeting.

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▶ Optimal Water Use in Industrial Sector-2021

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MEET THE SCIENTIST

DR. ARUN KUMAR SARMA



Prof. (Dr.) Arun Kumar Sarma, DG, NECTAR

Prof. (Dr.) Arun Kumar Sarma, Director General of North East Centre for Technology Application & Reach (NECTAR), is known for technology-driven research using plasma science & technology, particularly in the field of thin-film coating to enhance the lifetime of automobile parts, cutting tools, medical implants, textile materials, etc. He has transferred technology to the leading automobile industry of our country and is actively collaborating with other technology-driven institutes of the country and abroad to find suitable technology for overall development of the North East region.

Dr. Sarma has also transformed plasma technology for societal benefit in collaboration with Institute for Plasma Research (IPR) and Facilitation Centre for Industrial Plasma Technology (FCIPT), Gandhinagar, Gujarat. He has been closely associated with NRL ideation 'Startup' initiation program in NE region and has been involved in making significant contributions to the S & T intervention in the rural sectors of the northeast region to add values to their traditional products and enhance livelihood for the unemployed youth and women of NE region.

An MSc in Physics from Gauhati University and Doctorate in Plasma Physics from the Institute of Advanced Study in Science & Technology (IASST), Guwahati he did his post-doctoral research in the field of waves and instability and plasma diagnostics in the University of Innsbruck, Austria, and ISAS, Sagami-hara, Japan.

He is the recipient of prestigious BOYSCAST fellowship, DST, Govt. of India and Center of Excellence fellowship from the Ministry of Science Education and Culture, Govt. of Japan, and as a member of Plasma Science Society of India (PSSI), is enthusiastically promoting plasma science and technology in India and other South Asian countries.

FEATURED INSTITUTION



NECTAR brings saffron bowl to the NE, boosts technology for sustainable solution to the region's challenges

The saffron bowl of India, so far confined to parts of Kashmir, has now spread its wings to parts of the North East through the focused efforts of the North East Centre for Technology Application & Reach (NECTAR).

The North East saw the successful cultivation of saffron for the first time in Yangang district of South Sikkim. It is now being expanded to Tawang, Arunachal Pradesh and Barapani, Meghalaya.

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