

STRIDES

Science, Technology, Research, Innovation & DEvelopmentS

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

EDITORIAL

FROM HEAD OF DST MEDIA CELL

The Janjatiya Gaurav Diwas brought forward the need for the importance of harnessing STI capabilities of communities in Nation building. The confidence that STI capabilities had instilled among communities from different corners of India was evident from their interactions with the Union Minister for S&T. Empowered with the STI capabilities through STI hubs set up in various parts of the country by the Department of Science and Technology (DST) the communities have taken up entrepreneurship activities with the help of these capabilities. A yearlong, monthly Tech@75 programme inaugurated on Janjatiya Gaurav Diwas will be run as a testimonial of empowerment of communities.

DST's support had nurtured several innovation heroes and heroines across schools, labs as well as grassroots. Some of these grassroot innovation heroes were honoured with the Padma awards. The achievements in S&T continued their march with security ink based on nano-materials that spontaneously emits light can combat counterfeiting, new methods to study extrasolar planets and their environment, better therapeutics to treat Autism Spectrum Disorder, development of a non-toxic organic photocatalyst that can efficiently capture CO₂ and convert it into methane, thereby offering a carbon capture technology for the future and many more.

This newsletter also features the recent achievements of the historic Bose Institute of Kolkata, founded by Acharya Jagadish Chandra Bose.

—DR AKHILESH GUPTA, EDITOR-IN-CHIEF

COVER STORY



S&T MINISTER INAUGURATES TECHनी व @75 ON JANJATIYA GAURAV DIWAS & HIGHLIGHTS THE IMPORTANCE OF HARNESSING STI CAPABILITIES OF COMMUNITIES IN NATION BUILDING

Dr Jitendra Singh, Union Minister of State (Independent Charge) Science & Technology; Minister of State (Independent Charge) Earth Sciences emphasised on the need of multiplying the successful models of community capacity development through STI across the nation and nurturing the local level innovation for sustainable development while interacting with community groups at the inaugural ceremony of Techनी व@75 as a part of the Azadi Ka Amrit Mahotsav.

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From Head Of DST MEDIA CELL
Cover Story

Popular Science Stories

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New Initiatives

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Featured Institute



Journey of an innovator to an innovation influencer

Grassroots innovator turned social worker and noted environmentalist Shri Sundaram Verma who grew over 50,000 trees in the arid Shekawati region of Rajasthan using a water saving technique ‘dryland agroforestry’ that requires only 1 litre of water per tree once, then it leaves the seedling to grow has been conferred with Padma Shri, the fourth-highest civilian award of the country this week by the Hon’ble President of India Shri Ram Nath Kovind.

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Indian researchers develop better therapeutics to treat Autism Spectrum Disorder

A group of Indian researchers have developed a compound called “6BIO” that can provide a better method to treat Autism Spectrum Disorder (ASD). They have determined the potency of the compound in a pre-clinical mice model.

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Government schemes inspire children to dream of future with S&T

Several government schemes are instilling confidence among children to think innovatively, look at out of the box S&T solutions for numerous problems and also to break barriers and initiate their adventures in science.

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17 scientists from across India awarded Swarnajayanti Fellowships

Seventeen scientists from scientific institutions across India have been awarded the Swarnajayanti Fellowships’ for their innovative research ideas and the potential of creating impact on R&D in different disciplines.

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Grassroots innovator from Andhra Pradesh reviving dying art of making sustainable and children friendly wooden toys

Shri C V Raju, a grassroots innovator from Etikoppaka village, Visakhapatnam, Andhra Pradesh, is preserving the traditional method of making Etikoppaka toys, a proud heritage rooted in his village, by making vegetative dyes and developing technologies for increasing the shelf

life of the dyes.

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Low-cost process developed of synthesizing silver nanowires at large scale

A team of Indian scientists and research students have developed a process for large-scale manufacturing of nano-materials (Silver nanowires) that can bring down the costs to less than one-tenth of the market price.

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DST Inspire Faculty Fellow develops algorithms to ensure efficiency of networked systems

Atreyee Kundu, a DST INSPIRE Faculty fellow, has designed scheduling and control algorithms for networked control systems whose shared communication networks have a limited communication capacity and are prone to data losses.

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New non-toxic organic photocatalyst can efficiently capture CO2 and convert it into methane

Indian Scientists have designed a cost-effective metal-free catalyst to convert carbon dioxide to methane by absorption of visible light. Ongoing research is making a significant effort to reduce CO₂ into value-added products, methane (CH₄) could be one of the value-added products



with significant uses as the cleanest burning fossil fuel and can directly be used in fuel cells as a hydrogen carrier.

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Security ink based on nano-materials that spontaneously emits light can combat counterfeiting

Indian Scientist has developed a highly stable and non-toxic security ink from nano-materials that spontaneously emit light (luminescent) due to its unique chemical properties to combat the counterfeiting of branded goods, banknotes, medicine, certificates, currency.

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Kerala farmer's innovative technique can save senile cashew gardens from debilitating pests & frequent cyclonic storms

A woman farmer from Kannur district of Kerala has come up with an innovative practice to develop support roots in cashew trees to protect her senile cashew garden from devastating borer attacks and frequent cyclonic storms.

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Indian Astronomers find new method to study environment of extrasolar planets using polarisation of light

Indian Astronomers have found a new method to understand the atmosphere of extrasolar planets. They have shown that planets going around stars other than the Sun can be studied by observing the polarisation of light and studying polarisation signatures.

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▶ Teenage girl credited for Solar Ironing Cart exhorts the world to move towards clean energy during COP26

▶ Experts discuss recent trends in public policy and governance in science & technology

▶ New method of controlling clay dispersion can enhance the stability & shelf-life of clay suspensions used in cosmetics & personal care products

▶ Accelerating decline in diurnal temperature range in parts of India over 30 years may put agriculture & health at risk

▶ Indigenous knowledge shared by Gujarat based farmer can combat Mastitis, an ailment of dairy animals

▶ Clue to mystery of solar flares & CMEs in regions on Sun with disturbed magnetic field can help improving solar weather predictions

▶ Scientists spot brightest flare in blazar paving way for understanding galaxy mergers

▶ Indian astronomers develop methodology to understand the Exoplanets accurately

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INTERNATIONAL STORIES

BRICS Innovation Action 2021-24 prepared in India's leadership agreed by all concerned countries as key deliverable of S&T Ministerial

The BRICS Innovation Action 2021-24, which has been prepared in India's leadership, was agreed by all BRICS countries at the 13th BRICS S&T Committee Meeting.

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▶ NEW INITIATIVES

▶ India Philippines Joint Call for R & D Proposals

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▶ Challenge Awards 2021 on Solar Energy

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▶ Announcement Call for PURSE 2021

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▶ National Awards 2022

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MEET THE SCIENTIST

PROF. UDAY BANDYOPADHYAY



Prof. Uday Bandyopadhyay, Director, Bose Institute, Kolkata, is known for his contribution in cell biology with particular reference to mitochondrial oxidative stress in relation to initiation of gastric ulcer/gastropathy by commonly prescribed non-steroidal anti-inflammatory drug (NSAIDs).

An M.Sc (1987) in Physiology from the University of Calcutta, Kolkata and Ph.D in gastric pathophysiology and cell biology, Prof. Bandyopadhyay worked as a Post-doctoral Research Fellow at INSERM-U 99, Paris, France, studying the regulation of aspartate aminotransferase gene expression in hepatoma cells. He then worked as a Post-doctoral Research Fellow in the Department of Physiological Chemistry, University of Hamburg, Germany, studying inositol pentakisphosphate metabolizing enzyme as well as regulation of Ca²⁺ signaling in T-lymphocytes. On return to India he initiated study of the identification of antimalarial drug target and new antimalarial lead molecules and also on apoptosis in host cells during malaria or different aspects of host-malaria parasite interaction at the Indian Institute of Chemical Biology (IICB). Later he worked on different aspects of cell death mechanism in gastric mucosa in presence of non-steroidal anti-inflammatory drugs.

Prof. (Dr.) Bandyopadhyay is a recipient of several awards and honours including Humboldt Fellowship INSERM Fellowship from France, Professor R. C. Shah Memorial Award, Professor A. N. Bhaduri Memorial Award and J. C. Bose National Fellowship. He is a Fellow of the National Academy of Sciences (India), Allahabad, Indian Academy of Sciences, Bangalore, Indian National Science Academy, New Delhi and of West Bengal Academy of Science and Technology, Kolkata.

FEATURED INSTITUTION



Bose institute strides ahead with achievements ranging from breakthrough treatments, mega-science projects to control of air pollution

The Bose Institute, or the Bosu Vigyan Mandir, is Asia's first modern research centre devoted to interdisciplinary research. It strides ahead with achievements ranging from new treatment for severe brain disorders, neurodegenerative disorders, cancer, and infectious diseases, designing, manufacturing and supply of items for accelerator for mega-science project FAIR, Germany, to developing scientific strategies for control of air pollution.

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