

# STRIDES

Science, Technology, Research, Innovation & DEvelopmentS

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

## EDITORIAL

### FROM HEAD OF DST MEDIA CELL

In the midst of the second wave of the Pandemic, the Department of Science and Technology (DST) dedicated the completion of its 50th year to putting together efforts to combat the second wave.

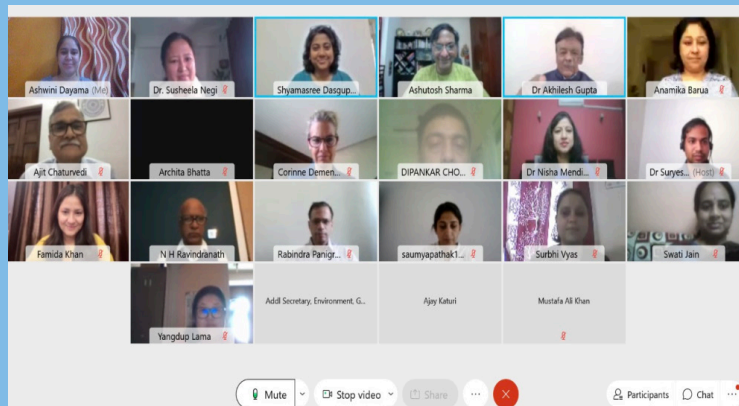
It invited start-ups to submit proposals for developing and scaling up technologies and innovative products to tackle the second wave of the COVID 19 pandemic under the NIDHI4COVID2.0 initiative. Responding to the urgent need to fight the second wave DST supported start-ups brought in technologies like affordable Rapid Antigen Test that could facilitate diagnosis and surveillance at the cost of Rs 100 per test.

At the same time, work on the other fronts continued unabated as a major climate vulnerability report was released identifying several states of eastern India as most vulnerable to climate change. Besides, on World Water Day dignitaries highlighted problems related to water and climate change. Apart from this Indian Astronomers provided clues to explosion mechanism of supernovae that are key measures of cosmological distances. Also, an integrated Solar Dryer and Pyrolysis pilot plant has been developed which will help smart cities transform urban organic waste into biochar & energy.

The newsletter features these R&D efforts and also National Innovation Foundation, the DST institute boosting grassroot innovations.

—DR AKHILESH GUPTA, EDITOR-IN-CHIEF

## COVER STORY



### NATIONAL CLIMATE VULNERABILITY ASSESSMENT IDENTIFIES EIGHT EASTERN STATES AS HIGHLY VULNERABLE

The National climate vulnerability assessment report identified Jharkhand, Mizoram, Orissa, Chhattisgarh, Assam, Bihar, Arunachal Pradesh, and West Bengal as states highly vulnerable to climate change.

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### DST TO SUPPORT STARTUPS OFFERING SUITABLE INDIGENOUS SOLUTIONS & PRODUCTS TO TACKLE SECOND COVID WAVE

NIDHI4COVID2.0, a new initiative under which the companies can apply, will fund eligible startups & companies registered in India offering promising solutions in the thrust areas of oxygen innovation, portable solution, relevant medical accessories, diagnostic, informatics, or any other solution that addresses/mitigate various challenges faced by country/society due to the severe impact of COVID 19.

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From Head Of DST MEDIA CELL  
Cover Story

Popular Science Stories  
COVID News Highlights

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New Initiatives

Meet the Scientist  
Featured Institution



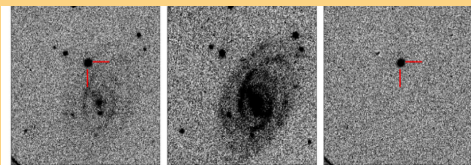


Fig 1. Left: SN 2017hpa in the spiral arms of its host galaxy UGC 3122. Middle: An image of the host galaxy after ~ 2 years from the explosion. Right: The SN after removing the light from the host galaxy.

## Study by Indian Astronomers provides clues to explosion mechanism of supernovae that are key measure of cosmological distances

In 2011, the Nobel Prize was awarded to three scientists for discovering that the Universe is expanding at an ever-accelerating rate through observations of distant supernovae. Now a team of Indian astronomers observing such distant supernovae have narrowed down the possible mechanisms of explosion of such supernovae which provide key measures of cosmological distances.

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## Integrated Solar Dryer and Pyrolysis pilot plant will help smart cities transform urban organic waste into biochar & energy

A Solar Dryer and Pyrolysis pilot plant at Chennai will soon offer an innovative approach for smart cities to transform urban organic waste into biochar and energy. The foundation stone of the Integrated Solar Dryer and Pyrolysis pilot was laid by Dr. K J Sreeram, Director, CSIR- Central Leather Research Institute (CLRI), Chennai on the occasion of 74th foundation day of CLRI on 23rd April 2021.

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## Community service centre to make data from India first solar space mission accessible for analysis

A community service centre has been set up to bring all data on board India's first dedicated solar space mission to a single web-based interface enabling the users to quickly look at the data and identify the interesting science cases.

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## Recycling Carbon technology by Bangalore startup receives TDB National Award 2021

A Bangalore based startup has received the National Award 2021 from Technology Development Board (TDB) for developing a commercial solution for conversion of CO<sub>2</sub> to chemicals and fuels.

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Dignitaries attending the 35th Foundation Day Celebration of INAE

## Dignitaries highlight the need to firm up future technologies to tackle upcoming challenges

Prof Ashutosh Sharma, Secretary, DST, stressed that as the future throws challenges at greater speed, INAE should play the role of think tank for the development and progress of country and to help common men reap the benefits of science, technology and innovation, at the 35th foundation day of INAE.

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▶ Satellite-based real-time monitoring of Himalayan glacial catchments can strengthen early flood warning & minimize disaster risk

▶ Centres housing major analytical instruments set up to increase access to research & testing facilities

▶ National Technology Day celebrations highlight surge in entrepreneurship spirit for cost effective tech

▶ Innovative, Low Cost charging infrastructure to accelerate the adoption of EVs Indian Standards for Low-cost AC Charge Point (LAC) to be released

▶ Three-dimensional distribution of molecular & atomic hydrogen in galaxies can give clues to star formation and galaxy evolution

▶ Self-propelled railway track scavenging vehicle can replace manual scavenging

▶ New clue about how particles self-assemble can pave the way for understanding dynamics in living cells

▶ Dignitaries underlined the need to understand and control data at DST Golden Jubilee Discourse Series

▶ A women-led startup develops deep-tech for reliable low-cost internet services to rural areas

▶ IIA explores stellar mysteries over 75 years

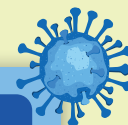
▶ Startups can learn from experience and wisdom: DST Secretary

▶ Woman scientist credited for making important contributions in the field of female reproduction receives SERB Women Excellence award

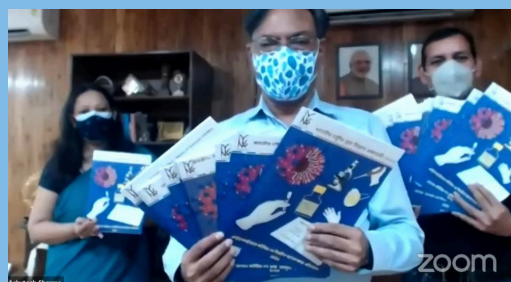
▶ Liberalised geospatial policy & space-based remote sensing policies to do wonders for country

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# COVID NEWS HIGHLIGHTS



## INYAS launches multipronged nationwide mass awareness campaign to bust myths about Covid 19 vaccination programme

Secretary, DST, Prof Ashutosh Sharma launched a multipronged nationwide mass awareness campaign on April 6 with information packages to bust myths about COVID 19 vaccination in 11 languages, including English and Hindi, make the immunization programme successful.

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## Government invites R&D proposals on Critical Components and Innovations in Oxygen Concentrators

A new initiative by the government will soon catalyze R&D on critical components and innovations concerning Make-in-India Oxygen Concentrators to meet the emerging healthcare requirements to combat the COVID 19 epidemic.

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## DST funded start-ups Electrochemical ELISA test would help rapid & accurate estimation of total antibody concentration of COVID 19

PathShodh Healthcare, the start-up incubated at SID, IISc, has made a very significant breakthrough to develop the first of its kind, semi-quantitative Electrochemical ELISA test for COVID 19 IgM and IgG antibodies.

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## India highlights efforts in preventing spread of coronavirus at roundtable on using STI for SDG on good health & well-being

India highlighted its efforts in preventing

the spread of coronavirus and development of new drugs, vaccines, and other innovative measures for curing the covid 19 patients at a high-level roundtable on 'Using Science, Technology, and Innovation to close the gap on Sustainable Development Goal 3 on good health and well-being.

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## DST institute TIFAC suggests integrated COVID 19 Command Centre

A COVID 19 Command Centre should be established in each district, equipped with necessary infrastructure and manpower to ensure both way information flow between COVID 19 Command Centre and villages.

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## DST institute develops new multiplex RT-PCR kit with novel gene targets to facilitate detection across various mutant strains of COVID 19

A newly developed multiplex RT-PCR kit has a higher accuracy of detecting covid 19 across the various mutant strains of the virus responsible for the global pandemic.

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## DST supported startup develops affordable test kits for early diagnosis of Covid 19 in rural & resource constraint areas

A Mumbai-based startup is ready with its affordable Rapid Antigen Test that offers COVID 19 diagnosis & surveillance at the cost of Rs 100 per test.

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## Experts Stakeholders discuss COVID Resurgence S&T Perspective

Experts from wide range of disciplines came forward on one common virtual platform to discuss the best approach to address the state of emergency of COVID crisis at a meeting on 10th May 2021.

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## INTERNATIONAL



► Experts from India & Japan discussed collaborations for innovations on Hydrogen based technologies

► Nine teams of scientists from India & Sri Lanka to research on subjects ranging from food technology to communications technology

► Third phase of Indian Beamline for Materials Research in Japan initiated focusing on industrial application research

► India-UK virtual summit strengthens STI cooperation

► BRICS countries underline importance of enhancing collaboration among astronomers

## NEW INITIATIVES

- SERB, IRHPA call for establishing Centres on AI-based Earth Systems Modeling
- Call for proposals for NIDHI Seed Support Program (NIDHI SSP)
- Call for proposals for NIDHI i TBI (Inclusive Technology Business Incubator) pro-gram
- Call for proposal for DST-NGP (erstwhile NRDMs) in 'Geospatial Technology Development'

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## FEATURED INSTITUTION



### National Innovation Foundation – India drives grassroots innovation movement in the country

Set up as a national initiative to strengthen the grassroots technological innovations and outstanding traditional knowledge in the country, indigenous and demand-driven innovations in India have received opportunities, exposure, and incubation support under the stewardship of the National Innovation Foundation (NIF).

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## OBITUARY



**DR. SANJAY  
BAJPAI**  
(FEBRUARY 1965-  
MAY 2021)

Dr Sanjay Bajpai who served as Head of Technology Mission Division at the Department of Science & Technology (DST) was an experienced technocrat with a history of designing and managing creative national and international research and development programmes. He displayed an exemplary commitment towards facilitating the creation of an eco-system for accelerated research, technology and innovation for clean and affordable water and energy in India even while negotiating pains and stresses of battling an organ rejection. Dr Bajpai did his doctorate from Indian Institute of Technology Delhi and mechanical engineering from Malaviya National Institute of Technology, Jaipur.



**DR. SUNIL KUMAR  
AGRAWAL**  
(JUNE 1964- APRIL  
2021)

For more than 30 years, Dr. Agrawal was involved in implementation and management of Science and Technology (S&T) based societal program of DST, a flagship scheme of DST called Technology Advancement for Rural Areas (TARA). It provided long term Cores Support to S&T capable NGOs, and Network Programs for addressing livelihoods and conservation issues in difficult areas such as mountain and protected areas involving field based S&T-VOs and R&D Institutions in consortia mode.

Dr. Agrawal who graduated from Dayalbagh Educational Institute (DEI), Agra is an alumnus of Forest Research Institute (FRI), Dehradun with a Ph.D. degree for research on rural technology models at IIT, Delhi and HFRI, Shimla.



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Editor-in-Chief: Dr Akhilesh Gupta

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## MEET THE SCIENTIST

### DR. VIPIN KUMAR



### Director and Chief Innovation Officer (CIO) at National Innovation Foundation (NIF)-India

Dr. Vipin Kumar is known for his work on incubation and promotion of inclusive and frugal innovations by way of value addition, intellectual property protection, business development, commercialization, and developing open-source technologies for generation of employment opportunities for the many. He incubated several innovative technologies which made their way to the domestic and international market.

He has worked as a resource person in UNESCO's course on Grassroots Innovation Management and workshops of policymakers, researchers to develop the road map for innovation incubation and promotion in the Asia-Pacific (APAC) region. The Festival of Innovation and Entrepreneurship (FINE), an annual national event jointly organized by NIF and DST under the aegis of the President's House in India and INSPIRE Awards - MANAK a flagship programme implemented by NIF and DST, which motivate millions of school students to pursue Science and a career in Research are amongst his most profound work areas in relation to India's innovation and entrepreneurship eco-system. He is instrumental in building social and inclusive innovation-based relationship between India and ASEAN Member States.

He has served as the Chairperson of various committees of the Union and State Governments as well as the Governing Board / Executive Committee Member of various prestigious Institutions and helped in coordination of National Entrepreneurship Awards (NEA) of Ministry of Skill Development and Entrepreneurship (MSDE), Govt of India as a lead partner. In over two decades of career, his leadership continues to motivate common people to deliver Innovative Technologies to solve societal problems and generate stories of social transformation, which makes the country proud.