DST

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STRIDES

Science, Technology, Research, Innovation & DEvelopmentS

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

EDITORIAL

FROM HEAD OF DST MEDIA CELL

"*Old order changeth yielding place to new*". As the COVID 19 brought about changes in the way life and livelihood is carried out all over the world, and people adjust to the new normal, Technology Information, Forecasting and Assessment Council (TIFAC), the autonomous institution of Department of Science and Technology that brought out the legendry Technology vision 2035, released a white paper on focused interventions for Make in India, post-COVID-19. The white paper highlighted technologies that would be relevant in the changed situation and how India could gear up to become self-reliant in these.

The new logo commemorating the golden jubilee celebrations of DST was released. DST, as well as its institutions, continued their contributions in providing research and technological support to the national effort to fight COVID 19. Consultation of different stakeholders for the process of formulation of the Science and Technology and Innovation Policy 2020 is also proceeding well as the institutions have restarted producing their research, publications, technologies, and their implementation in other areas too. International collaborations are also being initiated digitally across borders, and the inability to travel is rapidly being overcome through online communications. This newsletter takes you through this journey of change.

—DR AKHILESH GUPTA, EDITOR-IN-CHIEF

COVER STORY

DR. HARSH VARDHAN RELEASES WHITE PAPER ON FOCUSED INTERVENTIONS FOR MAKE IN INDIA: POST COVID 19 BY TIFAC

Dr. Harsh Vardhan, Union Minister for Science & Technology, Health and Family Welfare and Earth Sciences today released a white paper on "Focused Interventions for 'Make in India': Post COVID 19" and "Active Pharmaceutical Ingredients: Status, Issues, Technology Readiness, and Challenges", prepared by Technology Information, Forecasting and Assessment Council (TIFAC), at Nirman Bhawan, New Delhi.

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DST SECRETARY LAUNCHED LOGO & ANNOUNCED SERIES OF ACTIVITIES TO CELEBRATE GOLDEN JUBILEE COMMEMORATION YEAR

Secretary, DST, Prof Ashutosh Sharma launched the official Logo to celebrate Golden Jubilee Commemoration Year and also announced that since this is the golden jubilee year of DST, many activities like special lecture series of 15-20 lectures in the form of webinars and short feature films on each Autonomous Institutions are planned throughout the year.

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COVID NEWS HIGHLIGHTS

JNCASR spinoff launched molecular probes used in COVID-19 test kits

VNIR Biotechnologies Private Limited, a spinoff by JNCASR, an autonomous institute of DST, launched indigenous fluorescence probes and Polymerase chain reaction (PCR) mix for Reverse tran-scription-polymerase chain reaction (RT-PCR) detection which are molecular probes used in COVID 19 test kits.

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BSIP joins hands with Govt of UP to combat COVID 19 in the state

BSIP, an autonomous institute under DST, joined hands with the Government of Uttar Pradesh to combat COVID-19 in the state. BSIP, as one of the five Central Government Research Institutes in Lucknow, took initial steps to start laboratory testing of COVID 19.

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COVID Diagnostic Training Centre at JNCASR kicks off crash course in molecular diagnosis of infectious diseases focusing on COVID 19

JNCASR, an autonomous research institute under DST, Govt of India, has established a state-of-the-art COVID Diagnostic Training Centre at its Jakkur campus to help build capacity for the national fight against COVID 19 pandemic.

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SERB supported study shows that collapse of respiratory center in the brain may cause breakdown of COVID-19 patients

The team of researchers at CSIR- IICB, Kolkata, has explored the neuro-invasive potential of SARS-CoV-2 and suggested that the virus may infect the respiratory center of the brain, and attention should be focused on the respiratory centre of the central nervous system to search for mortality due to COVID 19.

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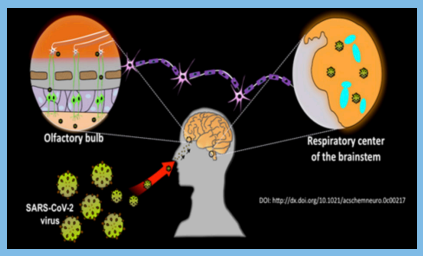

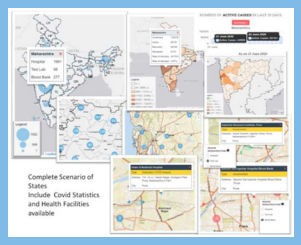

NATMO publishes 4th updated version of its COVID 19 Dashboard

NATMO, functioning as a subordinate department under DST, Ministry of Science & Technology, Government of India published the 4th updated version of COVID 19 Dashboard on its official Portal at http://geoportal.natmo.gov.in/Covid19/ on 19th June 2020.

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DST OVERSEAS

Ministerial meeting of Indo-US Strategic Energy Partnership highlight major accomplish-ments prioritizes new cooperation areas

A virtual ministerial meeting of the U.S.-India Strategic Energy Partnership (SEP) to review progress, highlight major accomplishments and prioritiz new areas for cooperation was co-chaired on July 17, 2020, by U.S. Secretary of Energy Dan Brouillette and Indian Minister of Petroleum and Natural Gas and of Steel Shri Dharmendra Pradhan.

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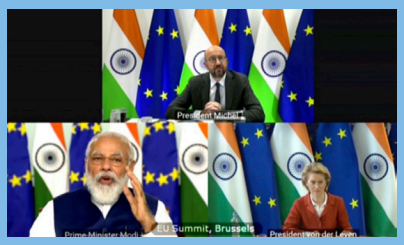

Indian & EU agree to renew Agreement S&T Co-operation for 5 years

With the agreement to renew adopted, both India and the EU agreed to further collaborate in research and innovation based on the principles of mutual benefit and reciprocity, as established in the India-EU Agreement on Science and Technology concluded in 2001, which expired on May 17.

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POPULAR SCIENCE STORIES

Low-cost supercapacitor from industrial waste cotton & natural seawater electrolyte can help energy storage

Scientists at ARCI, an autonomous organization of DST, have developed a simple, low-cost, environmentally friendly, and sustainable supercapacitor electrode derived from industrial waste cotton, which can be used as an energy harvester storage device.

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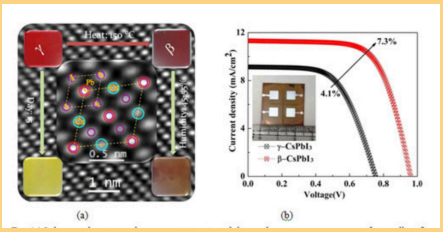

Photostable inorganic perovskites invented by SNBNCBS could pave the way for a low cost and efficient PV cells

Scientists from SNBNCBS, an autonomous institute of the Department of Science & Technology, Govt. of India in collaboration with the research group at IIT Kharagpur, invented a new phase of in-organic perovskite materials which is highly photostable even under humid conditions and can make photovoltaic cells efficient and low cost.

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Experimental proof of evolution of physical parameters can unravel information about gelation pro-cess of agar gel & bread dough

The gelation process is ubiquitous in many industries as well as in day to day activities. Simple adhesives such as epoxy glue and even food materials such as Jello, agar gel containing products, bread dough, aqueous solutions of whey protein, carrageenan, and gellan gum and so on undergo a sol-gel transition process.

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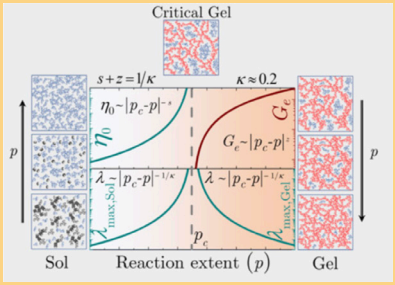

Synchrony in nature found in the quantum world

Natural oscillators getting into synchrony with each other is a phenomenon that occurs widely in nature ranging from pendulum clocks, fireflies, flying flocks or swarms of birds and bees evading predators, motor neurons and muscles to larger scales of synchrony in the periodic clapping of hands or of people walking on wobbly bridges.

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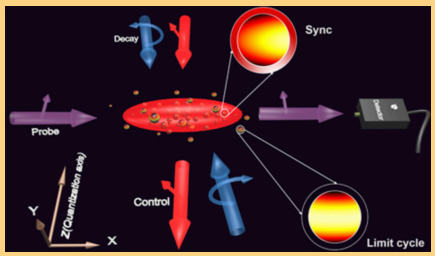

NEW INITIATIVES

- BRICS COVID 19 Call: Application
- Call for Applications under 'ABHYAAS' of Accelerate Vigyan Scheme

- Juxtaposition of pathways can help intensify fluorescent dyes for biosensing applications
- Photometric study of a microlensing event, detected by Gaia International space mission can help probe dark objects including black holes
- Dielectric solar control coating on glass can be a cost-effective solution to reduce air conditioning load
- INST scientists formulate nanoparticle to reduce severity of rheumatoid arthritis
- JNCASR introduces Ferroelectric Instability to improve efficiency of the Thermoelectric conversion of waste heat to electricity
- New strategy for early detection of breast cancer biomarkers can help treatment
- Top leaders of industries participated in industry consultation roundtable for the formulation of the new STIP 2020
- Temporal inventory of Glaciers in the Suru Sub-Basin, Western Himalaya: Impacts of the Regional Climate Variability
- Infusion of Gold Nanorods modifies peacock feather-like photonic structure in a frustrated liquid crystal
- SERB inaugurates Inter-Ministerial Initiative - Accelerate Vigyan Scheme
- A non-caloric natural sweetener that can make cancer therapy using magnetic nanoparticles more effi-cient

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MEET THE SCIENTIST

DR. G. PADMANABHAM

Director, International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI), Hyderabad

Dr G. Padmanabham, Director of International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI), Hyderabad obtained his PhD from Indian Institute of Technology-Delhi for his work on welding of Al-Li alloys. He is known internationally for his contributions in the fields of Materials joining; and Application of Lasers in Materials Processing.

After his stints as a Design & Development Engineer at Bharat Dynamics Limited, Hyderabad and Scientific Officer in the Department of Science & Technology, New Delhi, he joined ARCI, Hyderabad in 2005 to head the Centre for Laser Processing of Materials. Dr. Padmanabham made pioneering engineering contributions in the national context by developing industrial laser-based materials processing technologies such as hybrid welding, weld-brazing, microsurface engineering, micromachining and additive manufacturing for various industrial sectors such as power, automotive, aerospace, defense and nuclear.

Apart from his technological contributions, he developed innovative models for R&D-Industry engagement for technology development and transfer, leading to successful transfer of ARCI's technologies and innovations to the industry.

He is a recipient of Abdul Kalam Technology Innovation National Fellowship awarded by Indian National Academy of Engineering (INAE), Materials Research Society of India (MRSI) Medal, Distinguished Alumni Award of National Institute of Technology, Warangal, Andhra Pradesh Scientist Award and Life Time Achievement Award of Society for Automotive Engineers (SAE) India. He is an elected Fellow of The National Academy of Sciences, India (NASI), Andhra Pradesh Academy of Sciences (APAS), Telangana Academy of Sciences (TAS), Indian Welding Society and the Institution of Engineers (India).

FEATURED INSTITUTION

TIFAC thinking beyond: A small effort to big leap towards Atma Nirbhar Bharat

As a unique knowledge network institution in India, TIFAC's activities encompass a wide array of technology areas and fill the critical gaps in the overall S&T system in India like white paper on Focused Interventions for 'Make in India': Post COVID 19. The organization has carried out technology foresight exercises, facilitated and supported technology innovation towards commercialization, technology upgradation of homogenous MSME clusters, prepared technology linked business opportunity reports, and has facilitated IP creation in the country.

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