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भारत सरकार
विज्ञान और प्रौद्योगिकी मंत्रालय
विज्ञान और प्रौद्योगिकी विभाग
टेक्नोलॉजी भवन, नया महरौली मार्ग
नई दिल्ली-110 016

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
TECHNOLOGY BHAVAN, NEW MEHRAULI ROAD
NEW DELHI-110 016

No.Misc.1/13/2019-CDN
12.05.2021

Dated:

OFFICE MEMORANDUM

Subject: Monthly Summary to the Cabinet for the month of April, 2021.

The undersigned is directed to enclose herewith a copy of the Monthly Summary of important policy decisions taken and major achievements of the Department of Science & Technology for the month ending 30.04.2021 for information.

2. This has already been approved by Secretary, DST.

(Pulok Sen Gupta)
Under Secretary to the Govt. of India

To,

All Members of the Council of Ministers (as per Annexure-I)

Copy with enclosures, forwarded to:-

- i. Vice Chairman, NITI Aayog, NITI Bhawan, New Delhi. (vch-niti@gov.in)
- ii. The Chairman, Union Public Service Commission (chairman-upsc@gov.in)
- iii. Chief Executive Officer, NITIAayog, NITI Bhawan, New Delhi (ceo-niti@gov.in)
- iv. The Principal Secretary to the Prime Minister, Prime Minister Office, South Block, ND

(pkmishra.pmo@gov.in)

v. All members of NITI Aayog, NITI Bhawan, New Delhi. (vk.saraswat@nic.in, rc.niti@gov.in, vinodk.paul@gov.in)

vi. Secretary to the President of India. (secy.president@rb.nic.in)

vii. Secretary to the Vice-President of India. (secyvp@nic.in)

viii. Principal Scientific Advisor to the Govt. of India. (vijayraghavan@gov.in)

ix. All Secretaries to the Government of India (secy-goi@lsmgr.nic.in)

x. The Principal Director General, Press Information Bureau, Ministry of Information and Broadcasting. (pdg-pib@nic.in)

xi. The Director, Cabinet Secretariat, New Delhi. (cabinet@nic.in)

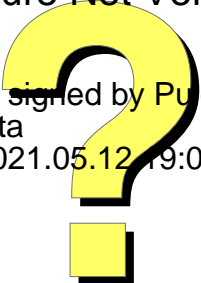
xii. Shri Sanjay Kumar Mishra, Sc. 'G', DST for uploading the Monthly Summary on DST's website. (sanjaykr.mishra@nic.in)

xiii. PSO to Secretary, DST. (anuj.tripathi@nic.in)

xiv. AD (OL), DST for Hindi Translation (kn.singh65@gov.in)

Signature Not Verified

Digitally signed by Puok
Sengupta
Date: 2021.05.12 19:03:01 IST



Department of Science & Technology
Monthly Report
April 2021

I. Important policy decisions taken and major achievements during the month:

A. Science for Society

1. Agharkar Research Institute (ARI), Pune, Birbal Sahni Institute of Palaeosciences (BSIP), Lucknow, Institute of Advanced Study in Science & Technology (IASST), Guwahati and Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), Thiruvananthapuram were approved for testing COVID-19 samples and testing sample to detect SARS-CoV-2.
2. Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), Thiruvananthapuram inaugurated a new outpatient Clinic in the Hospital wing “Geriatric Pain Care & Regenerative Intervention Services”. This specialty clinic is exclusively for elderly patient’s services involving degenerative chronic muscular skeletal and neuropathic pain using regenerative & intervention therapies.
3. Indian Institute of Astrophysics (IIA), Bengaluru, is contributing actively to Vigyan Samachar, an initiative of the DST to convey scientific activities to the general public in a simple manner. Live-streaming of the tenth episode of “Science Stories” on IIA YouTube channel were conducted. In this series, present and past students of IIA share their life stories and experience in research with an aim to motivate the younger generation to take up research in basic science as their career.
4. As a part of outreach programme, a talk entitled “Rock formations, Rock & paleomagnetism” was delivered to the students of the St. Claret college, Ziro, by Shillong Geophysical Research Centre of Indian Institute of Geomagnetism, Navi Mumbai.
5. National Innovation Foundation (NIF)-India, Ahmedabad granted 14 patents to the grass root innovators on
 - Herbal compositions for treatment or prevention of hypertension;
 - Herbal composition for a beverage with anti-inflammatory properties;
 - A topical herbal dental composition for use in treating tooth infection;
 - Herbal compositions for hair care;
 - Herbal composition and their use for control of hypertension;
 - Liquid heating apparatus and a method of heating thereof;
 - A device for collecting objects from the ground and process thereof;

- A method and system of operation of an automotive vehicle with an inbuilt navigation system;
 - Herbal composition for the treatment of ephemeral fever;
 - Herbal composition for the treatment of enteritis and process for making the same;
 - Herbal composition and feed thereof;
 - Herbal compositions for increase and improvement of milk yield in Cattle;
 - Protective cover system for motor vehicles;
 - Auto rickshaw control device and its operation method usable by disabled people;
6. NIF evaluated M-Jamini, a farmers' paddy variety which was tolerant to rice blast disease having aromatic long slender grains and superior in terms of yield over popular check varieties. Biochemical Profiling of farmer's pea variety Makhyatmubi Selection was completed and a total of nine plant varieties - wheat, mango, banana, bottle gourd, mustard and fennel were field verified and documented.
 7. Dissemination of Sitara Sringar (Mustard) and JK 1 (Hyacinth bean) varieties were successfully undertaken by NIF at 20 farmers' field in Banaskantha, Mehsana and Bharuch, Morbi districts of Gujarat wherein mustard variety exhibited good performance in terms of yield and JK 1 was reported to be superior for green pod yield at all locations.
 8. The Yoga mat product (joint venture of NECTAR and local entrepreneur M/s SIMANG) using water hyacinth was launched during by North East Centre for Technology Application and Reach (NECTAR), Shillong
 9. Vigyan Prasar (VP) continued to aggregate, collate, edit and design various products related to Science & Technology Communication Popularization and its Extension (SCoPE). Thus, it produced six monthlies in different languages –Hindi, English, Urdu, Tamil, Bengali, Maithili. VP also produced its monthly newsletter for its 3000 VIPNET clubs; a new monthly on a national mission on diet and nutrition called Aahaar Kranti in association with Vijnana Bharati and published the monthly DREAM-2047; Published two newsletters, titled as S&T Efforts in India on COVID-19 after aggregating content from various sources.
 10. For its Science Channel VP completed a total 30 films (15H + 15E) on Autonomous Institutions (AIs) of Department of Science & Technology (DST).
 11. Science and Engineering Research Board (SERB) has developed a real-time information retrieval portal “SERB – Project Information System & Management (SERB – PRISM)” that provides information related to research support extended by SERB over

the years. SERB-PRISM provides a platform to provide project details, research outcomes, facilities created and their achievement, making a strong scientist-scientist and science-society connect. SERB-PRISM will be a significant step forward in SERB's commitment towards transparency, accountability and dissemination of research outcomes originating from SERB funding, while allowing researchers to look at research trends, learn about cutting-edge science, locate critical equipment in their vicinity and help seek collaborations across disciplines.

12. Taking note of the impact of COVID-19 on the planned research work of National Postdoctoral Fellows (NPDFs), SERB has approved extension of the tenure of the Fellowship of 2018 Batch of NPDFs for a period up-to six months with fellowship. The extension will allow the NPDFs to complete the work as originally planned and suffered due to lockdown.
13. The National Academy of Sciences, India (NASI) in collaboration with the Rotary International organised the visit of the Children of the slum areas nearby Prayagraj, in a phased manner to the Ganga-gallery at NASI Prayagraj to make them learn with fun about the Ganga river bio-ecosystem.
14. A talk on "Lessons from the Pandemic: New Models for Global Scientific Collaboration" was organized by Indian National Sciences Academy.
15. A virtual meeting to discuss the proposals submitted by Core Support Groups (CSGs) for consideration under SFURTI & ASPIRE schemes of Ministry of Micro, Small and Medium Enterprises (MSME) was held on 12th April, 2021 (02:00 to 05:30 PM). This joint initiative between MSME and SEED Division, DST will encourage the technology driven social entrepreneurship for traditional rural industries.
16. The 2nd Meeting of the National Steering Committee (NSC) for the Programme on "Scientific Utilisation Through Research Augmentation – Prime Products of Indigenous Cows (SUTRA – PIC)" of the Department of Science and Technology (DST), Government of India (GoI) was held (virtual) through virtual mode under the chairmanship of Dr. Harsh Vardhan Hon'ble Minister of Health & Family Welfare, Science & Technology and Earth Sciences on 13.04.2021
17. Two days **Individual Technical Expert Group (ITEG) meeting** for the **SUTRA-PIC** programme under the category "Scientific research on Prime-products from indigenous cows- based utility items" was held on 22nd and 23rd April 2021 through virtual mode, to evaluate 24 new proposals based on presentation before **ITEG**.
18. Expert Committee meeting on S&T for Women programme was organized virtually on 15th, 16th and 22nd April, 2021 to review ongoing and completed projects and to scrutinize new proposals for support.

19. Three new IPR Cells have been established in Gujarat. The Institutes where the IPR cells have been established are Sankalchand University, Mehsana; Government Polytechnic, Ahmedabad and Indus University, Ahmedabad.
20. Brain Storming Conclave & Techno-fair for Transforming Meghalaya State Specific Technology Applications for upliftment of livelihood avenues and entrepreneurship in Meghalaya was organized by NECTAR on the 9th and 10th April 2021, where Meghalaya State S&T Council, Head SSTP and Programme Incharge, SSTP participated actively.
21. One Day Workshop regarding Plan of Action (PoA) using Space Technology inputs and data available in NeSDR Portal with all North Eastern States, was organised by State Council of Science Technology & Environment (SCSTE), Meghalaya on 19th April,2021.
22. Awareness programme on Vector borne disease cum distribution of Mosthwak Mosquito Repellent cream at Nongkya village in East Khasi Hills District, was conducted by State Council of Science Technology & Environment (SCSTE), Meghalaya in coordination with Medical Officer of Mawsiatkhnem PHC on 30.04.2021.
23. A training workshop on “Hands on Master Trainer ”under skill development on LED bulb was conducted by Arunachal Pradesh Council of Science & Technology from 11.04.2021 to 13.04.2021.
24. Various programmes/sessions/webinars were conducted by Gujarat State Council of Science and Technology like Farmer awareness program, vaccination awareness programmes, Skill development programmes for students, Online vigyan darshan program, Nanotechnology Brainstorming session, webinar on "Immune System" and “Cryptography- Code to Cipher” etc.

B. National Technology Mission

1. The Status of the target achieved has been received from the Technology Innovations Hubs (TIHs) established under National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS) and the records have been updated. Also, the revised Detailed Project Report (DPR) as per the Tripartite Agreement has been received from all the 25 TIHs and summaries have been prepared to be presented before the Expert Committee.

C. Technology Development

1. An industry sponsored project on “Microbial production of hydrogen from agricultural waste” was completed by Agharkar Research Institute (ARI), Pune and the know-how is shared. One patent is also granted to ARI on “A process for production a chromi-umenriched yeast supplement”
2. Indigenously developed Lithium-ion cells (NMC based) and Lithium-ion cells (LFP based) are undergoing testing and validation at industrial locations by International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), Hyderabad,
3. ARCI also developed Carbon based Perovskite Solar Cell (at lab-scale) by using ambient temperature curable TiO_2 nanoparticles as electron transporting layer and achieved 11.2% efficiency with high stability.
4. Prototype of high temperature stable absorber tubes (1m) and 2m receiver assembly were successfully developed by ARCI with targeted optical properties (>95% Abs and 0.16 emittance) and high thermal stability (< 5000C) in an open atmospheric condition for Concentrated Solar Thermal (CST) systems for industrial process heat and power generation application.
5. Scientists from Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru and the Indian Institute of Science (IIS), Bengaluru, tuned the nature of the chiral activity of millimetre-sized rice-shaped grains with the help of 3D printing. This is the first experimental study to uncover that even when objects are not chiral in shape, chirality inactivity alone can bring about selectivity and recognition between the interacting particles. By exploiting 3D printing to design chiral active matter, Scientists can systematically encode different extents of chiral activity and explore its consequences on the emergent dynamical behaviour. Chirality-mediated selective interactions are of utmost importance in asymmetric catalysis, supramolecular polymerization, medicinal drug designing, and separation where self-recognition, sorting, and discrimination of molecules are required.
6. Technology of customized 3D printed surgical drill guides for guiding surgeons to plan surgeries like shoulder implant replacement and acetabular fractures etc. designed, developed and scaled up under the support of Srijan Program implemented by Technology Information, Forecasting & Assessment Council (TIFAC), New Delhi has been successfully piloted on 50+ patients in hospitals and have achieved design validation in real time surgeries. The company has got contract from Army Hospital (Research & Referral), New Delhi to deliver 50 numbers of patient specific surgical guides for jaw reconstruction surgeries over a period of 2 years.

7. In exploring long-term solutions for sourcing sustainable energy by developing indigenous technologies, Science and Engineering Research Board (SERB) has opened up new R&D platforms to integrate new opportunities in smart energy transformation, storage and management to offset our dependence on conventional energy, provide stable power to off-grid areas, and support the EV revolution. Accordingly, SERB solicits R&D proposals for Centre for Energy Transformation and Storage in three specific areas:
 - Electrochemical energy storage systems for micro-grid installations
 - Technologies for utility-scale high-capacity batteries
 - Transparent photovoltaics for devices and surface integration
8. An Interactive meeting was held with Council on Energy, Environment and Water (CEEW) to discuss on Clean Energy Research Initiatives.
9. An interactive meeting was held with experts from IIT Roorkee and IIT Delhi to discuss on MI 2.0 Power Mission and future activities.
10. An interactive meeting was held with experts from Science and Technology Park to discuss on Developing energy efficient and ECBC compliant opaque wall assembly unit for warm & humid climate as well as hot & dry climate.
11. Project Review and Monitoring Committee (PRMC) meeting was held to review the projects supported under the Advanced Ultra Super Critical (AUSC) programme.
12. An interactive meeting was held with the experts to discuss the future activities and road map of the project entitled Indigenous Air Unique-quality Monitoring (AUM) Photonic System developed for Real-Time Remote Monitoring of Air Quality.

D. International Cooperation

1. **BRICS Science, Technology, and Innovation (STI) Cooperation:** An Inter-ministerial meeting to review midterm progress on India's Chairmanship of BRICS was held on 16 April, 2021. During the meeting, it was brought to attention that along with the calendar, India presented its priorities and agenda for the year at the first Sherpa/Sous-Sherpas Meeting. India received positive feedback on this decision from BRICS partners. DST informed that the comments received on BRICS Innovation Cooperation (2021-24) from Russia and Brazil are welcome and has sought clarification on some of the new actions suggested for inclusion in the Action Plan. DST also clarified that China's proposal to set up BRICS Innovation Center was never agreed upon in the S&T Minister meeting. Further DST has given its inputs to the Depart-

ment of Commerce on possible actions on BRICS Innovation Cooperation under overarching BRICS Economic Partnership.

2. **34th Meeting of the Governing Body of the Indo-French Centre:** The 34th Meeting of the Governing Body of the Indo-French Centre for the Promotion of Advanced Research (IFCPAR) was held virtually on 13 April, 2021. The meeting was Co-chaired by Prof. Ashutosh Sharma, Secretary, DST with Mr. Matthieu Peyraud, French Ministry of Foreign Affairs. Both Co-chairs felt that the bi-national Indo-French Center for Advanced Research has been a unique model of cooperation for about 35 years and needs to be strengthened to meet the contemporary aspirations of our S&T cooperation. The GB discussed further expansion of programmatic activities of IFCPAR focused on innovation; networked centres and academia-industry connect projects which can address the economic and societal challenges of the two countries.
3. **22nd Governing Board meeting of the Indo-US S&T Endowment Board:** 21st Governing Board of the Indo-US Science & Technology Forum, co-Chaired by Secretary DST was held on 15th April 2021. The meeting included a strategy and visioning session to identify priority areas of collaboration and the mechanism to move such collaborations forward.
4. **India-Finland Webinar:** The Department of Science & Technology along with the Embassy of India in Finland organised a webinar with the Network of Indian Academics and Researchers in Finland and Estonia (IARFE) on 30th April 2021 to enable sharing of information, resources amongst the Group, and build partnerships between Indian, Finnish, and Estonian academic and research organizations. The focus area of the webinar was 'Environmental Sciences – Sharing Scientific Research and Best Practices in Finland, Estonia and India', a topic of global relevance with scope for cooperation between all three countries.

During the inaugural session, the Finnish Minister of Science and Culture; Secretary-General of the Estonian Ministry of Education and Research; Ambassador of India to Finland and Estonia and Associate Director – BioPharma R&D, AstraZeneca were the key panelist, other than Secretary, DST. During the three technical sessions, speakers from India, Finland, and Estonia delivered talks covering topics such as (i) Pollution Prevention and Remediation (ii) Sustainability, and (iii) Circular Economy. In his opening remarks, Secretary DST touched upon an overview about PRABHASS - Engagement between India and Indian diaspora who are into academics and research and they can play a role in furthering scientific cooperation between India and the countries where they are based.

5. **Indo-Japan Webinar on De-carbonization:** DST and S&T Wing, Embassy of India in Tokyo organized India-Japan Webinar on "De-carbonization: Exploring the Hydrogen

Prospects and Innovative Technologies" on April 19, 2021. Institute for Global Environmental Strategies, Japan (IGES) and The Energy and Resources Institute (TERI), India, were the engaging ministries and institutions in Japan and India, respectively. The Webinar was started with the opening remarks by H.E. Mr. Sanjay Kumar Verma, Ambassador of India to Japan, GoI, and Mr. MIYAMOTO Shingo, Minister, Head of Economic Section, Embassy of Japan, New Delhi, GoJ. The keynote address was delivered by Prof. Ashutosh Sharma, DST. In the technical session, speakers from India and Japan presented their ideas to explore more possibilities of collaboration between groups in Japan and India.

6. **India-Israel Industrial R&D and Technological Innovation Fund:** Under the India-Israel Industrial R&D and Technological Innovation Fund - CFP - 6, 2020, a meeting for the evaluation of eight joint projects was held virtually on 21st and 22nd April. Before this, due diligence of each project was held during March 2021.
7. **India-Columbia High-Official meeting:** Based on the Science and Technology Cooperation Programme signed between the Ministry of Science, Technology and Innovation (Minciencias) of Colombia and the Department of Science, and Technology (DST), Ministry of Science and Technology of India in 2017, a high-official meeting was held on April 14, 2021 (India)/ April 15 (Columbia) for discussing the possible future cooperation in the areas of STI policies - technical cooperation; Bioeconomy – biotechnology and green technologies, and Aerospace. A detailed discussion was held on during the meeting and it ended on a positive note to further work on the possible future collaboration in the proposed areas with the help of the Embassy of India in Colombia and the Columbian Embassy in New Delhi.
8. **Indo-Japan Cooperative Science Programme (IJCSP)-2020:** Under Indo-Japan Cooperative Science Programme (IJCSP)-2020, 20 joint research projects and 3 workshops have been selected which would be carried out by the Indian and Japanese researchers on the mutually agreed areas of Physical Sciences, Chemical Sciences, Life Sciences and Agriculture, Mathematics and Computational Science, Astronomy and Earth Science, Materials and Engineering, and COVID-19 related (preventive technologies, Artificial Intelligence applications, Screening and diagnostic testing).
9. **India-Sri Lanka Joint Call Result:** The Department of Science and Technology (DST), Government of India and the State Ministry of Skills Development, Vocational Education, Research & Innovation, Government of the Democratic Socialist Republic of Sri Lanka has launched a joint call 2019 for proposals in the areas of (i) Food Technology; (ii) Plant base medicines; (iii) Metrology; (iv) Space Research & Applications; (v) Robotics & Automation; (vi) Industrial Electronics; (vii) Renewable Energy; (viii) Waste Management; (ix) Information and Communication Technology; (x) Any

other project with national relevance (with Justifications).

In total, 193 common proposals were received against the joint call. Based on scientific merit, complementarities of the project objectives, scientific strengths of the project coordinators, national priorities and availability of budget, The DST, Government of India and the State Ministry of Skills Development, Vocational Education, Research & Innovation, Government of the Democratic Socialist Republic of Sri Lanka have jointly decided to support a total of 09 projects and 03 workshop joint proposals.

10. **DST – Mitacs, Canada Meeting:** A meeting with Mitacs Canada was held at the Virtual Platform of Microsoft Teams on 16th April 2021 to discuss the possible ways of collaborations.
11. A meeting was held with officials from Rocky Mountain Institute (RMI) to discuss on ongoing & Future activities of Global Cooling Prize (GCP).
12. A meeting was held with Indian Experts to discuss about the projects under India-EU joint call on Integrated Local Energy Systems.
13. An interactive meeting was held with experts from IIT Roorkee to discuss on Mission Innovation IC7: Affordable Heating and Cooling of Buildings ongoing activities and future roadmap.
14. A meeting was held with officials of Mission Innovation (MI) member countries to discuss ongoing activities of MI platform and future roadmap.
15. A meeting was held with officials from Ministry of External Affairs, Ministry of Power, Ministry of Petroleum & Natural Gas and NITI Aayog to discuss on India-US Strategic Energy Partnership.
16. A meeting was held with officials from European Commission, UK and Global Covenant of Mayors for Climate & Energy to discuss on MI 2.0 cities mission research & innovation activities and future plans.
17. An interactive meeting was held with experts from IIIT Hyderabad, MNIT Jaipur and Oxford Brookes University, UK to discuss the ongoing & future activities of the project entitled Residential building energy demand reduction in India (RESIDE).

E. Human Capacity Building

1. The National Geospatial Chair Professor (GCP) position of Dr. Nagaraja Ravoori was transferred to International Institute of information Technology, Hyderabad (IIIT H) from National Institute of Rural Development & Panchayati Raj (NIRDPR) Hyderabad. It was envisaged that the above transfer will speed up the activities carried out by GCP Dr. Ravoori, as IIIT H is also working on smart cities and 3D models which will

help to improve the GIS-3D modes study on which Dr. Ravoori is also working with SOI. Relevant letters to Dr. Ravoori and NIRDPR were also sent.

2. The tenure of another Geospatial Chair Professor, Dr. J. S. Rawat was extended under Geospatial Chair Professor Scheme of DST-NGP which will strengthen the promotion of Geo-spatial education and S&T at National and sub-national level.
3. **Renaming of KIRAN:** KIRAN (Knowledge Involvement in Research Advancement through Nurturing) Scheme caters all the women centric initiatives of DST. In order to provide meaningful name which could be correlated with target group, the name has been changed into **'Women in Science & Engineering-KIRAN (WISE-KIRAN)'** in month of April.
4. **Vigyan Jyoti:** Several activities have been conducted under Vigyan Jyoti during April. A summarized view is given below:

Meetings: A review meeting chaired by Secretary, DST was organized on 16 April 2021 to see the progress made under IBM, India and NVS collaboration for Vigyan Jyoti Programme. IBM team has presented their contribution in Vigyan Jyoti which was appreciated by NVS and DST Teams.

- Another group discussion meeting was held with NVS team on 24 April 2021 wherein they have presented the work progress under Vigyan Jyoti. DST team has discussed about preparation of e-booklets and brochure under Vigyan Jyoti.

Webinars/Events: Sessions on *'Climate Change in Ganga Basin'* by Dr. Somnath Bariya Roy, IIT Delhi; *'Computational Knowledge System of Temple Sthapathis – Perspective from Architecture Conservation Science'* by Professor Kailash Rao M, School of Planning and Architecture, Vijayawada; *'Ayurveda for Our Well Being'* by Prof. Vishnu Vaze, Mithibai College, Mumbai; *'How Does the Brain Control Our Movements and Locomotion'* by Dr. Raghav Rajan, IISER Pune; *'Space Science and Technology'* by Shri - N. Sudheer Kumar, ISRO; *'Restore Our Earth'* by Padma Bhushan Dr. Anil Prakash Joshi; *'Role & Importance of Geospatial Technology in Pollution Abatement & Water-shed Management'* by Sh. Misal Roshan Srivastava, Survey of India have been conducted. Further, Shri Manish Jain has conducted sessions on *'World of Plants'*, *'Life of Microbes'* and *'The Story of Water'* under 3030 STEM. An online program titled *"Brain Development Workshop"* organized by Routes 2 Roots Foundation. Shri Jatin Shah, CEO and Founder of JS Academy organized workshop on *'Advanced Excel'*.

Orientation & Counselling: To begin with all the schools are organizing inaugural cum orientation programmes along with student-parent counselling sessions. JNVs (Vigyan Jyoti Centres)- Gandhinagar, Golaghat, Mandi, Chandigarh, Raipur, Dehradun, Kanpur, Udhampur, North Sikkim, East Khasi Hill, East Medinipur, Nalbari, etc. have conducted orientation cum counselling sessions during April.

Role Model Interaction and Special Lectures: Around 32 role model interactions and talks have been organized by different JNVs during April. Few scientists are Dr. Madhu Thalakulam, IISER Thiruvananthapuram; Dr. Jonaki Sen, IIT Kanpur, Dr. Remya Bhanu (JNV Alumnus), NASA Postdoctoral Program Fellow, Goddard Space Flight Center, Maryland; Dr. Bindiya Arora, Guru Nanak Dev University, Amritsar; Ms. Niralee Verma, Central Pollution Control Board, New Delhi; Sh. Santosh Takale, BARC, Mumbai; Dr. Kalpana Maheria, SVNIT, Surat; Dr. Romica Latawa, CRI, Kasauli; Dr. Rajesh Patidar, CSIR- Advanced Materials & Process Reserach Institute Bhopal; Dr. Mamta Aggarwal, DST Woman Scientist, University of Mumbai; Dr. Radhika T, Centre for Materials for Electronics Technology (C-MET), Thrissur; Dr. Divya Singh, CDRI Lucknow; Dr. Shabnam Sircaik, Brown University, Rhode Island, USA. Further, Dr. Shagolsem Lenin Singh, NIT, Manipur gave special lecture on “How to prepare for different Entrance Examination of Engineering/NEET with special focus for the subject Physics”. Prof. Davinder Singh Johal, Department of Psychology, GNDU, Amritsar also motivated girls with “Girls Too Can Excel in Science & Maths”.

Special Programmes: JNV Khorda is organizing special classes of Math since April 5, 2021 through its Knowledge Partner IIT Bhubaneswar. JNV Kanpur has organized number of lectures through its Knowledge Partner IIT, Kanpur. JNV Barmer and JNV Almora have organized career counselling session for the Vigyan Jyoti Scholars. JNV Prayagraj organized online poster competition.

IBM Activities: IBM, India conducted orientation program on Learning Management System (LMS) for school teachers and principals on April 15, 2021. IBM has also organized online interactive workshops on the “Cyber Security” for all registered Vigyan Jyoti scholars in four different batches. IBM has also prepared an E-book in April 2021 showcasing a total of 32 Math and Science projects for Classes XI-XII designed by selected JNV teachers and validated by team of American India Foundation.

Special Online Classes: In this month 36 online classes for Class XI-XII students have been conducted to give them more clarity of concepts and skills to face the competitive examinations. In addition to this, 54 recorded lectures have been made available to Class XII VJ Scholars. Further, 8 tests have been conducted for JEE/NEET.

5. **Gender Advancement for Transforming Institutions (GATI):** During April, Selection letters have been sent to 30 institutions for participation in GATI pilot. GATI charter has been finalized and for implementation in selected institutions. Further, concept of GATI programme was shared during Mutual Learning Workshop organized

by Advance HE, UK on 21 April 2021. Apart from DST team other International Organization working for Gender Advancement have also participated in this workshop and discussed best practices and way forward. Under GATI, six (6) institutions of UK have been identified which will provide mentoring to selected institutions under GATI. An orientation Meeting has been organized with these Institutions wherein, need of Gender Advancement Programme in India was discussed. Tweets on these events have also been shared @IndiaDST.

6. **Women Scientists Scheme:** Processing has been started to release grant in ongoing and completed projects under WOS-A and WOS-B programmes.
7. **Nomination for L'Oreal-UNESCO Award:** After a thorough internal discussion in Divisional meeting a list of eminent women scientists of India has been prepared and submitted for L'Oreal-UNESCO Award nomination under Life Sciences and Environmental Sciences.
8. **Various** Training Program on Innovation & Entrepreneurship conducted i.e Women Entrepreneurship Development Programme (WEDP), Technology Based Entrepreneurship Development Programme (TEDP) & Faculty Development Programme (FDP) by Academic & Engineering Institutes all over the country through online mode.
9. **Innovation in Science Pursuit for Inspired Research (INSPIRE) Scheme**

INSPIRE Internship

- Four INSPIRE Internship Science camp reports were settled.

Scholarship For Higher Education (SHE):

- KVPY Management Committee meeting-2021 was organised by IISC., Bangalore on April 19, 2021, through virtual mode to decide the course of action for implementation of KVPY Fellowship Programme.

INSPIRE Fellowship:

- Released grant of Rs. 15.01 Lakh to Host institutes of 10 Indian and 3 UK Fellows for Newton Bhabha Ph.D. placement program 2020.
- INSPIRE Fellowship 2020 Level-1 Evaluation committee meeting to screen the eligible applications for level 2 evaluation was organized at ARCI, Gurugram.
- Considering the COVID-19 pandemic, the Provisional offer validity of INSPIRE Fellowship 2019 was extended for 6 months. Provisionally offered candidates can upload their Ph.D. Admission documents on the INSPIRE web-portal till 10th October, 2021.

INSPIRE Faculty Fellowship:

- Five screening, assessment & evaluation committee meetings of INSPIRE Faculty Fellowship component of INSPIRE Scheme were organised during April, 2021 at INSA New Delhi.

F. Scientific Infrastructure Building

1. A peptide designed by Bose Institute (BI) is capable of binding specifically, to the positive strand leader RNA. When the peptide was transported inside the cell, it inhibited viral growth with IC50 values in the low micromolar range. Given the widespread occurrence of leader RNAs in negative strand RNA viruses and its interaction with the nucleocapsid protein, it is likely that this interaction could be a valid drug target for other negative strand RNA viruses.
2. A list of FDA-approved drugs have been obtained by BI through virtual screening with the promise to inhibit Mpro of COVID-19. The N3 molecule is already known to bind to Mpro, which is reported as its co-crystallized ligand. The binding score of N3 has been used as a reference, and the ligands with scores better than this are plausibly expected to bind to Mpro with higher affinity. The scores of the docking and also the computed binding free energies are best interpreted in a relative scale, instead of debating on the absolute values. The use of ensemble representation of the receptor's conformation has implicitly covered the possibilities of "induced-fit" and/or "population shift" mechanisms that the ligands might adapt to fit in the pocket, and therefore this method has been powerful to identify a wide variety of ligands, and many of which would have been otherwise missed out. It has not only identified antiviral drugs like ribavirin, ritonavir, etc., but it has also identified the drugs used in various other diseases, e.g., amrubicin, cangrelor, desmopressin, diosmin, etc. as the potential candidates to inhibit Mpro. The screened drugs might have a cumulative inhibitory effect on the viral multiplication and pathogenesis.
3. Spectroscopy of visual interacting galaxies SDSSJ110429 is carried out to examine if they are the result of gravitational lensing by a cosmic string by Indian Institute of Astrophysics, Bengaluru.
4. Optical studies on a natural dye obtained from 'Indigofera Tinctoria' by light and matter physics group members at Raman Research Institute (RRI), Bengaluru and collaborators has revealed excellent non-linear absorption in the same range as that of materials such as graphene oxide making them potential candidates for fabricating optical limiter devices for eye and sensor protection.

5. In another study, observations on cosmic ray positron flux by RRI had confirmed that the positron flux rises with energy and shows a peak near a few hundred GeV. Astrophysicists at the Institute have proposed that cosmic rays while propagating through the Milky Way galaxy interact with matter in giant molecular clouds producing other cosmic rays, primarily electrons and positrons, and that these new cosmic rays are the origin of the rise in positron flux.
6. A diabatic PESs of $\{MnO_6\}_9$ -complex generated using RS2 methodology by Indian Association for the Cultivation of Science, Kolkata. It will be used to compute higher energy satellite transitions in the dielectric function spectra of the $LaMnO_3$ complex in near future.
7. Synthesis and characterization of Cu_3TaS_4 and Cu_3SnS_4 nanoparticles for potential photovoltaic applications – a detailed study of the growth of these nanocrystals; Understanding the Stokes shift in $CsPbX_3$ – mixed halide nanocrystals was conducted at Centre for Nano and Soft Matter Sciences.
8. A team of astronomer's from Aryabhata Research Institute of observational sciences (ARIES), Nainital spotted over 200 new stars in the Pacman nebula . ARIES researchers were a part of the large international collaboration of The Gaia Gravitational Lenses Working Group (GraL) which has recently discovered a dozen quasars that have been warped by a naturally occurring cosmic “lens” and split into four similar images. The most distant gamma-ray emitting narrow line seyfert 1 galaxy was identified in a study lead by ARIES scientist. The Aditya L1 support cell set up at ARIES is a joint effort of ISRO and ARIES and will cater to the requirements of guest observers while preparing science observing proposals and analysing science data.
9. Hollow-porous nanospheres of $ZnMn_2O_4$ spinel with high energy density cathode for rechargeable aqueous battery has been demonstrated by S N Bose National Centre for Basic Sciences (SNBNCBS), Kolkata to be very promising material for next-generation energy storage device applications.
10. The effect of solvent on the photophysical properties of isoxazole derivative of curcumin has also been reported by SNBNCBS.
11. Long-term optical/near-infrared photometric and spectroscopic observations have been made to study of the time-dependent properties of a poorly known OH/IR star, IRAS 18278+0931, toward the Ophiuchus constellation by SNBNCBS, also High sensitivity and high selectivity room temperature ammonia gas sensors with both visual and electrical responses have been demonstrated from family of lead halide perovskites and Ising universality class of kinetic exchange models of opinion dynamics has been reported.

12. **Fund for Improvement of S & T Infrastructure in Universities and Higher Educational Institutions (FIST)**

- a. The first interaction meeting on “Fund for Improvement of S&T Infrastructure (FIST) was convened on 15 April, 2021 through Microsoft Teams by involving on-going SATHI Centres to get updates about FIST projects implemented and stakeholders were apprised of the recent changes incorporated in the FIST Program.
- b. A Public Notice for display by the existing FIST/ PURSE beneficiaries for easy and transparent accessibility as well as optimal utilization of the R&D facilities, both by internal researchers and researchers outside the beneficiary organization (including industries/ start ups) has been put up at the DST website.
- c. The details on relevance, nature, type, eligibility, new Terms & Conditions etc. for consideration of support under the DST FIST Program were uploaded at the DST website.

13. **Promotion of University Research and Scientific Excellence (PURSE)**

The success story about the Outcome and overall impact of PURSE Grant at Punjab Agricultural University (PAU) Ludhiana was released on DST Twitter, website and DST Facebook. The impact of PURSE Grant at PAU, Ludhiana was also released by Press Information Bureau of India. The PURSE support has strengthened the research on Punjab’s new nutrient rich crop & vegetable varieties which can cater to nutritional needs of the country.

14. **Sophisticated Analytical and Technical Help Institutes” - (SATHI)**

The 18th "SATHI Ki Baat" Meeting was organized on 15 th April 2021, convened on Microsoft Teams to review the recently supported “Sophisticated Analytical and Technical Help Institutes” (SATHI) centres at three host institutes (IIT Delhi, IIT Kharagpur and BHU- Varanasi) and for discussion about the latest technical and financial progress.

15. **Sophisticated Analytical Instrument Facilities (SAIF)**

DST sponsored SAIF centre at Panjab University, Chandigarh has organized a Global Webinar titled "Emerging Trends & New Technologies on Indoor Air Purification (IAP)" on 7th April, 2021.

16. NSDI participated in the 2nd International Conference held on “**Unmanned Aerial Systems in Geomatics (USAG)**” on 2-4 April 2021 and presented the data life cycle management techniques of high resolution 2D/3D foundation data sets forward level planning activities to the participants on 03.04.2021 using the examples from the Varanasi Cloud POC project.

17. A day-long National Workshop on “**Development of SDIs and its Impact on Climate Change in Cachar District, Assam**” was organized by NIT Silchar on 16 April, 2021 to demonstrate the utility of standards-based data services in managing intensity and frequency of extreme weather events in a typical geo-environmental setting of a Himalaya terrain of Assam State. Participants from various academic and R&D institutions, Government Departments attended the event got exposed to the emerging techniques of using we-based services.
18. Based on the interaction held amongst GSDL-IAC members of 26 March, 2021 at GNCTD office (Government of National Capital Territory of Delhi), DDA shared its data and geospatial processing requirement by the DDA Master Plan -2041 Team on 18.04.2021 for initiating steps **for provision of on-line web feature services by GSDL** (Geospatial Delhi Limited) for analytical processing by DDA. GSDL is working on provision of up-to-date Road Feature Data for use on an experimental basis.
