

Government of India
Ministry of Science and Technology
Department of Science and Technology
(CDN Section)

Technology Bhawan,
New Mehrauli Road
New Delhi-110016
Dated - 13.10.2020

OFFICE MEMORANDUM

Subject: Monthly Summary to the Cabinet for the month of September, 2020.

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 30.09.2020, for information please.

2. This issues with the approval of Secretary, DST.

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

To,

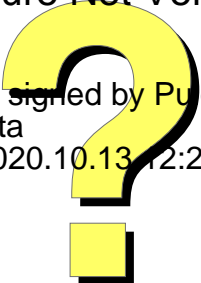
All Members of the Council of Ministers (as per Annexure-I)

Copy with enclosures, forwarded to:-

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- b) The Chairman, Union Public Service Commission (chairman-upsc@gov.in)
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Signature Not Verified

Digitally signed by Puok
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Date: 2020.10.13 12:21:28 IST



Annexure-I

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Department of Science & Technology
Monthly Report
September, 2020

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

A. Various Measures taken by DST for COVID-19

1. The COVID-19 Laboratory at Birbal Sahni Institute of Palaeosciences (BSIP), Lucknow is routinely (on a daily basis) testing samples for Covid-19 from various districts of Uttar Pradesh and reported fastest among Indian laboratory in terms of average processing time of the samples.
2. SCTIMST also developed canister bags lined with super-absorbent material containing an effective disinfectant, named “AcryloSorb” for the disposal of respiratory secretions of patients suffering from highly contagious diseases such as COVID 19, tuberculosis (TB) and influenza, poses high risk of infection among healthcare workers.



(AcryloSorb)

3. Remedial Action, Knowledge Skimming and Holistic Analysis of COVID-19 (RAKSHAK), is now a part of Technology Innovation Hub (TIH) set-up at IIT, Jodhpur. The various projects under RAKSHAK to develop a technology platform based on Artificial Intelligence (AI) to mitigate the pandemic COVID-19 situation are being initiated.
4. Loan Agreement has been signed on 23rd September, 2020 with M/s Cocoslab Innovative Solutions Pvt. Ltd., Bangalore for a loan assistance of Rs. 275.00 lakh against total project cost of Rs. 590.94 lakh for part financing the project titled “Advanced video analytics for low-cost thermal cameras to identify persons with abnormal body temperature in public places”.
5. Grant-in-Aid Agreement has been signed on 4th September, 2020 with M/s Advance Mechanical Services Pvt. Ltd. Bangalore for a grant assistance of Rs. 21.50 lakh against total project cost of Rs. 70.00 lakh for part financing the project titled “Industrial IOT enabled IR Thermography-based Temperature Scanners”.

6. Grant-in-Aid Agreement has been signed on 25th September, 2020 with M/s Evobi Automations Pvt. Ltd, Bangalore for a grant assistance of Rs. 15.00 lakh against total project cost of Rs. 35.50 lakh for part financing the project titled “Portable Ultra-Violet based Box Sterilizer & Modular Movable Ultra-Violet based Indoor Room Sterilizer”.

B. Science for Society

1. Validation of innovative agricultural plant varieties by Nation Innovation Foundation (NIF), Ahmedabad revealed that Makhyat mubi pea (has superior yield, higher pods per plant, greater pod length, mode number of seeds per pod and greater seed weight), capsicum pumpkin (has higher yields), wheat variety BLK Balaji (found to be highly resistant to stem rust and moderately resistant to leaf Rust-North) and wheat variety Kudrat 9 (found to be highly resistant to leaf rust North and moderately resistant to leaf rust South). The rice variety ‘Chinnar 20’ was found to be resistant to major insects of rice. Three indigenous medications in treatment of subclinical mastitis and endoparasite infestation were evaluated and found effective.
2. Campaign for India Science started through My Gov platform by Vigyan Prasar (VP). MoU signed with IBM for creating engage platform for India Science.
3. Indian National Academy of Engineering (INAE), Gurgaon prepared a White Paper on “Technological Preparedness for dealing with National Disruptions”.
4. Popularization of scientific activities was done through electronic and print media by Agharkar Research Institute (ARI), Pune. DST Vigyan Samachar published and publicized articles on research work done at the institute, viz. <https://dst.gov.in/two-new-species-pipeworts-discovered-western-ghats-maharashtra-karnataka>.
5. NIF initiated the dissemination of grassroots technologies in Theni, Tamil Nadu and Khasi hills region in Meghalaya for various technologies namely Energy Efficient stove, Tamarind De-seeder, Fruit Nipper and few plant varieties.
6. An Indian patent has been granted to Hand Held Spirometer System developed under a project “Design and Development of Clinical Prototype of Electronic Spirometer” supported to Dr. Amrit Dixit, Disha Institute of Management and Technology under Technology Intervention for Disabled and Elderly Programme.

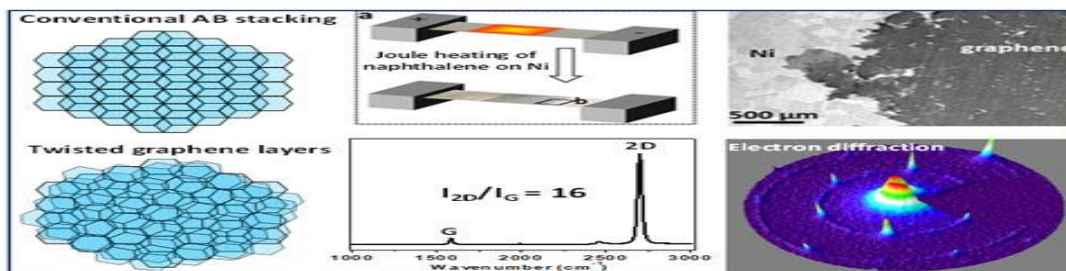
C. National Technology Mission

1. The pre-draft version of tripartite agreement between the Host Institute, Section-8 Company and Mission Office was placed before the Working Group (WG) **of National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS)** on 11th September 2020 for modifications/suggestions. Accordingly, a VC meeting with WG members was organised on 16th September 2020, for discussing the pre-draft Tripartite Agreement.
2. Detailed Project Report (DPR) work for concentrated solar power (CSP) plant with supercritical carbon dioxide (SCO₂) has been supported to IISc Bangalore which will pave the path way to develop the new power cycles with reduced carbon footprints.
3. Review/ Release of funds for smooth functioning of the projects in following domain:

- Fabrication of Super-Hydrophobic antireflective coating on solar panels to enhance its efficiency
- Design and development of solar-thermal and thermal-electrical hybrid system
- Enabling investigations for high efficiency nanocrystalline-si:H HIT solar cells
- Indigenous development of dye sensitized solar cells modules with different electrolytes

D. Technology Development

1. A new low-cost method of upscaling production of graphene while preserving its single layered properties, developed at Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru, by a simple, affordable method, wherein naphthalene coated nickel foil was heated for a few minutes in an ordinary vacuum by joule heating and was cooled to get twisted layers of graphene.



2. A Medical Devices Park (Medspark) is being established as a joint initiative of Shree Chitra Tirunal Institute of Medical Sciences and Technology (SCTIMST) and the Kerala State Industrial Devt. Corporation Ltd (KSIDC) in Thiruvananthapuram. The objective of the Medspark is to create an enabling support system to offer full range of services related to the development of medical devices that the industry needs.
3. The research team of the Department of Medical Devices Engineering in Biomedical Technology Wing of SCTIMST has developed the technology for a simple, advanced and cost-effective blood flow meter. The technical know-how of the device has been transferred to M/s. EnProducts Pvt. Ltd. for commercial production.



(Blood Flow Meter)

4. Deep Vein Thrombosis (DVT) is the formation of blood clots in deeply located veins, usually in the legs. SCTIMST, has developed a device for the prevention of DVT. The license for the manufacture and sale of the device was transferred to M/s. Enproducts Pvt. Ltd., located in Kochi, Kerala.



(External Pneumatic Compression Device)

5. SCTIMST has signed an MoU with M/s. Tynor Orthotics Private Limited (Tynor), Mohali to set up an Orthotics and Rehabilitation R&D vertical to promote indigenous device development. Tynor will collaborate with SCTIMST for the co-development of Orthotic devices and to promote joint research programs in Orthotics and Rehab. The main objective of this Institute-Industry collaboration is to develop a cluster of orthoses for catering to clinical conditions such as osteoarthritis and diabetic foot ulcer.



6. International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), Hyderabad has indigenously developed Petroleum coke-based super-capacitor using activated carbon derived from petroleum waste.



(Super-Capacitor)

7. This first prototype Super capacitor demonstrated a high capacitance of 1200F. ARCI produced Tungsten Weight Balances used in strategic applications by Spark Plasma Sintering technique.



(Tungsten Weight Balances)

8. A meeting held with experts from IIT Delhi & Thermax Pune Chaired by Secretary, DST to discuss on Methanol Production from Indian Coal: Pilot Plant Demonstration, Catalysis and Scale-up Technologies.
9. A Screening committee meeting held at IIT Delhi to check the eligibility of the proposals received under the Indo-EU joint call on integrated local energy systems.
10. Division has strengthened its support towards the multi institutional Demand Driven mission mode project co-led by IIT Madras and IIT Bombay – New Strategies for Optimal Operation of Water Supply Schemes by use Scheduling and Decentralized Infrastructure. The project team has completed proposed objectives as per the proposed timelines in which Field visit and preparation of the site has been completed. Preparation of recommendations and dissemination of results in user workshops has been completed. Based on hydraulic simulation and analysis intervention in which the pilot area was designed, in this, work is proposed to be completed in three phases and the first phase is almost complete. Locations of five important valve locations in transmission lines have been identified. Actuators with appropriate specifications have been procured and commissioned successfully. Procurement of 10 actuators initiated and procurement of sensors is completed. Techniques for the operation were finetuned and developed. Baseline data about current operation collected. Pre-intervention baseline data for pressure and flow have been collected.
11. Organized and attended two days review meeting remotely for reviewing 8 Indo UK projects under Indo-UK Water Quality Research Programme supported by DST- NERC/EPSRC. This meeting was held on 10-11 September 2020. The reviewed 8 projects have been working on improving water quality by providing a better understanding of the sources and fate of different pollutants. Solving and tackling India and UK's water quality issues and securing the provision of clean water, rejuvenate rivers, and restore ecosystems. These 8 projects under this joint programme envisages to support research for improved understanding of the sources, transport, transformation, interactions and fate of pollutants, and determining the risks they pose to both people and the environment.
12. Two new Technology Stream: Demonstration of Lab Scale projects were sanctioned during this month:
 - “High performance integrated two-stage electrochemical technology for recovery of water from electroplating effluent with real time monitoring & control system”.

- “Development of an integrated wastewater treatment and fuel production system using ceramic membranes and microchannel reactors”.
13. Electro spun solvent sintered anion exchange membrane for acid recovery from industrial effluents
 14. Utilizing the versatile platform of biomass derived nanocellulose based magnetic nanocomposites for the facilitative removal of organic pollutants from wastewater
 15. Self-sustained system to clean industrial waste water and generate electricity simultaneously without any external source
 16. In one of the TMD (EWO) supported projects to Amity University, Noida; Prof. Suman’s group have developed the electricity generation from waste/dirty water and simultaneously cleaning the waste water without using any material and power from outside. After scaling-up power generation, they were successful in lightening the 10 Watt LED tube light in our lab at Amity Noida.

E. International Cooperation

1. **Announcement of the Ramanujan Prize winner 2020:** DST is funding, since 2014, the ICTP Ramanujan Prize of USD 15,000 for the developing country mathematicians for the outstanding work done in the challenging circumstances in the developing country.

Professor Carolina Araujo mathematician from Brazil has been selected for the Ramanujan Prize for the year 2020 for her outstanding work in Algebraic Geometry, birational geometry, and the theory of extremal rays. She was also recognized for promoting women in mathematics. The DST is giving this award since 2014 to a commendable mathematician, working in the developing countries.

2. **India BRICS S&T Cooperation:** DST virtually participated in the first Taskforce on BRICS Research infrastructures, hosted by Russian Federation on September 4, 2020. The Task Force deliberated on future cooperation for the infrastructures in neutron source, synchrotrons, and underground labs. DST also participated in the 6th virtual meeting of the Working Group on BRICS Astronomy hosted by the Russian Federation on 24-25 September 2020. As recommended during the 3rd Working Group meeting hosted, a BRICS Astronomy Flagship Proposal titled ‘BRICS Intelligent Telescope and Data Network (BITDN)’ developed by the BRICS astronomy community was discussed and decided to be shared with the respective BRICS focal points and Ministries for the further consideration.
3. **Announcement of Young Scientist Conclave under the Shanghai Cooperation Organization (SCO):** The first SCO-Young Scientist Conclave under the Shanghai Cooperation Organization(SCO) will be hosted by India from 24-28 November 2020. About 120 young scientists, innovators, 30 experts, policymakers, and officials from Scientific Ministries/Departments of the SCO member states are likely to participate. The broad aims of this conclave are to provide an opportunity for the youth in SCO Member States to interact, network, and collaborate among themselves to address pertinent challenges in emerging areas of science and technology. The conclave would also facilitate the preparation of next-generation scientific leadership in Science, Technology, and Innovation (STI) and future-readiness among Science, Technology, Engineering, and Mathematics (STEM) Professionals and building SCO scientific identity in STI through creative youth. The thematic groups chosen for this conclave include Agriculture and food processing; Sustainable energy and energy storage;

Biotechnology and bioengineering; Combating COVID-19 and emerging pandemics through research and innovation; Environmental protection & natural resource management.

4. **India-EU Science and Technology Cooperation:** India-EU Workshop on Wastewater treatment, reuse, and demonstrations of latest state of art affordable technologies in Indian field conditions held on 25-26 September through virtual mode. The Workshop has been organized under one of the India-EU water projects supported by the Department of Science & Technology (DST) and the European Commission. In this project, twenty-five research agencies are drawn from academic institutions, SMEs, NGO, civic bodies from India and Europe are working together. A total of fourteen pilot plants for wastewater treatment including emerging pollutants, water harvesting for groundwater recharge have been envisaged under the project. The twin objectives of the workshop were to exchange knowledge, technologies, guidelines, and tools for service providers and SMEs; enabling research partnerships and creating favourable environment for the application of treatment systems and providing training to develop critical mass in this area. More than 150 researchers; representatives from the industry; end-user like civic bodies, NGO; DST officials participated in this workshop.
5. **Indo-German S&T Joint Scientific Committee meeting:** A joint scientific committee meeting was held by Indo-German Science & Technology Centre (IGSTC) through web-conferencing on 28-29 September 2020 for the evaluation of proposals under 2+2 joint call 2019 under DST, India, and German Education & Science Ministry (BMBF), Berlin. In the 2+2 joint call, each country should have at least one partner from academics and one from the industry.
6. **India-Peru Webinar on 'Knowledge of Traditional Medicine' :** A Webinar was organised by the Department of Science and Technology (DST) in collaboration with the Ministry of AYUSH, Indian Mission in Peru, and the National Council of Science, Technology and Technological Innovation (CONCYTEC), Peru on **'Knowledge of Traditional Medicine'** on September 17. Both countries are enormously rich in biodiversity and traditional medicinal knowledge. The experts from both sides shared their research findings in the areas of native flora, and medicinal plants, methods to conserve their traditional practices, and the use of these practices in combating against COVID-19. Both sides understand that there are lots of similarities in Indian and Peruvian traditional medicine practices and expressed their interest in future cooperation. The Indian side invited the Peruvian students and young researchers for short term fellowship programs. The outcome of this webinar is a way forward for funding agencies for the implementation of new S&T programs and the sharing of the best practices.
7. **DST-UKIERI Joint Virtual Workshop:** The DST with UKIERI organized 5 days DST-UKIERI joint virtual workshop on "Water Security Assessment of Indian Rivers originating from the Himalayas" during 7-11 Sept 2020. The workshop was coordinated from the Indian side by **the Indian Institute of Technology (IIT) Bombay and from the UK side by the University of Bristol**. Recognizing the importance of the issue, all participants unanimously agreed there is an urgent need to address these issues through concerted research and development efforts by forming a consortium with stakeholders.

Another DST-UKIERI virtual workshop was organised on "adversarial cyber security" by the Indian Institute of Technology (IIT) Mandi, in collaboration with London Metropolitan University and Centre for Multidisciplinary Innovation and Collaboration (C-MRiC), during September 23-24, 2020. This workshop discussed

modes to impart knowledge and shared experiences about the technological, cognitive, and social aspects involved in cyber-attacks and cyber-defence.

8. A VC meeting for discussing Collaboration with Ben Gurion Heritage Institute in Israel was organized on 24th September 2020. The visual presence of the founder of independent India, Mahatma Gandhi in Ben-Gurion's Desert Home and its centrality there, is a sign of the high regard felt by Israel's founder towards Mahatma Gandhi. The aim was to expand the historical connection in order to advance cooperation and organize joint virtual tours with Sabarmati Ashram. The idea is to work towards the envisaged objectives of attracting visitors from both countries, relating the uniqueness of these two leaders and strengthening bilateral relations between India and Israel.
9. A virtual curtain-raiser event organized on 30th September 2020 for the International Conference on IoT (Cyber-Physical Systems) planned during next financial year 2020-2021 to lay out an understanding of the proposed main conference. This event covered the domain areas of Artificial Intelligence, Robotics, Cyber Security, 5G and Indian Start-ups vs Technological Revolution. The Event was organised to build the momentum for the main conference and was useful for Young Engineers, Start-ups, Entrepreneurs, Technologists, and Faculties from various academic institutes. Speakers presented cutting-edge technology, new business and novel ideas.
10. Mission Innovation IC7: Affordable Heating and Cooling of Buildings Co-Lead meeting held with experts from Department for business and Energy & Industrial Strategy, London and Rocky Mountain Institute, US and Heat Pump Centre, RISE Research Institutes of Sweden Discussed Research and Implementation potential in India and roadmap for developing the programme.

F. Human Capacity Building

1. **Women Scientists Scheme:** Four (4) Handholding meetings have been conducted with Principal Investigators of Women Scientists Scheme-A (WOS-A). Around 120 women scientists from Physical and Mathematical Sciences, Engineering and Technology, Earth and Atmospheric Sciences and Chemical Sciences have participated in these meetings. The challenges at work front faced by women scientists have been discussed. DST officials also resolved several technical, administrative and financial queries of women scientists related with their project. Apart from this, a session on how to prepare Utilization Certificate and Statement of Expenditure, Bharatkosh, PFMS and other formalities for next release of grant was also conducted in each meeting.

Further, 45 Sanctions have been issued under WOS-A and WOS-B programmes during September.

2. **Vigyan Jyoti:** Special lecture on “A road less travelled but a journey worth taking” by Dr. Swapnil Shinde, University of California, San Francisco, USA; “India in Space” by Dr. A.S. Kiran, Former Chairman, ISRO; “Prospects and Possibilities in the New Space Age” by Dr. K Radhakrishnan, Former Chairman, ISRO, “Welcome to Nano world of Science” by Prof. Sabu Thomas, Vice Chancellor, Mahatma Gandhi University, Kottayam, and “Covid 19: Challenges and Management” by Dr. Suban K Sahoo, NIT Surat have been conducted.

Special Online Classes: During September, 99 online classes have been conducted for girls selected under Vigyan Jyoti. These classes are aiming to build the academic strength and to help students in clarity of concepts and skills to

face the competitive examinations. Besides classes, 2 online tests have been also conducted for all the Vigyan Jyoti students on 13th and 27th September, 2020.

3. **INSPIRE-MANAK:** During this month 30 Sensitization Meetings have been conducted with teachers and officials implementing the MANAK Scheme in different States/UTs. Around 3500 teachers/officials have participated in these meetings.
4. **Science and Technology of Yoga and Meditation (SATYAM):** First Expert Committee Meeting has been conducted under SATYAM-Special Call on 17th and 18th September, 2020 for final recommendations on proposals submitted under SATYAM to combat with Covid-19 pandemic.
5. **Innovation in Science Pursuit for Inspired Research (INSPIRE) Scheme:**
Scholarship For Higher Education (SHE):
 - 1095SHE scholars received their scholarship for pursuing B.Sc./M.Sc. Degree course in basic and natural sciences.**INSPIRE Fellowship:**
 - 234 INSPIRE Fellows received their fellowship for pursuing their doctoral degree programme.**INSPIRE Faculty Fellowship:** 75 INSPIRE Faculty Fellow's grant was released for pursuing their Post-doctoral programme.

G. Scientific Infrastructure Building

1. Different project activities in Facility for Antiproton and Ion Research (FAIR), Thirty Meter Telescope (TMT) and India-based Neutrino (INO) projects continued. Regional Worldwide Large Hadron Collider Computing Grid (WLCG) Tier-2 facilities continued working 24X7 during the month.
2. Scientists from Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru and Indian Institute of Science (IISc), Bengaluru have devised a unique way to observe the process of devitrification under a microscope, in real-time.
3. Indian Association for the Cultivation of Science (IACS), Kolkata developed new sensor for detection of biogenic thiols.
4. Raman Research Institute (RRI), Bangalore scientists experimenting with new ways to manipulate quantum states so that they can be harnessed for computing, communication and metrology, have found a novel way to characterize and estimate such states. This method of characterization called Quantum State Interferography can help to make such manipulations simpler so that several crucial operations in quantum technologies become less cumbersome. Moreover, the work also indicates how this technique could lead to miniaturized devices in the long run, which could be used for quantum state estimation at a commercial scale.
5. Wadia Institute of Himalayan Geology (WIHG), Dehradun developed a neural-based approach for the computation of a new meta-attribute by combining a set of other seismic attributes to automate the process of interpretation of subsurface geologic feature from surface 3D seismic data, and demonstrated its successful application by delimiting 3D structural geometry of Mass Transport

Deposits in the Karewa prospect of Taranaki Basin off New Zealand, where MTDs are evidenced. This approach is very useful for the exploration of hydrocarbons, providing geotectonic implications, and natural hazards assessment with a limited intervention by human analysts, particularly when the data volume is big and the area is geologically complex.

6. A new programme on Technology Readiness Level Assessment was initiated by Technology Information, Forecasting & Assessment Council (TIFAC), New Delhi for the creation and management of the technology portfolio in select institutions like research laboratories, academia, Atal innovation labs and TBIs.
7. The superconductivity in NdNiO₂ and LaNiO₂ employing a first-principles derived low-energy model Hamiltonian, consisting of two orbitals: Ni $x(2)-y(2)$, and an axial orbital was observed by S N Bose National Centre for Basic Sciences (SNBNCBS), Kolkata.
8. An ultrasonic technique to measure relative humidity and temperature of open-air containing suspended particulate matters in a controlled environment was developed by SNBNCBS.
9. Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru, Saha Institute of Nuclear Physics(SINP), Kolkata and DESY, Germany introduced new catalytic properties in gold by altering most stable face-centered cubic (fcc) lattice, converting it into a new avatar that can trigger gold-based catalysis for industry.
10. Using the data obtained with the recently operationalized ST Radar facility at Aryabhata Research Institute for Observational Sciences (ARIES), Nainital, a paper on the estimation of atmospheric turbulence parameters of Himalayan region was published. Another work conducted on estimating the black hole mass using a new formula to access spectra of accretion discs around black holes.
11. The allergenic potential of *F. lateritium* was conducted at Bose Institute (BI), Kolkata and the allergens were identified.
12. BI accessed the relative role of black carbon and sea-salt aerosols as cloud condensation nuclei over a high altitude urban atmosphere in eastern Himalaya.
13. The inhibitory effects of entacapone on amyloid fibril formation of human lysozyme was investigated by BI.
14. In collaboration with CSIR-IICB a new pyrimido-quinoxaline fused heterocycle was designed by BI that showed enhanced fluorescence upon binding the Mg²⁺ binding site of tRNA.
15. The Indian Institute of Astrophysics (IIA), Bengaluru Science Team for the Visible Emission Line Coronagraph (VELC) instrument for the Aditya-L1 Mission worked on new observation logics for raster-scans by the spectroscopic and spectropolarimetric channels of VELC and provided inputs to the payload and mission teams of ISRO for their implementation.
16. **Promotion of University Research and Scientific Excellence (PURSE):** Online Interaction Meeting was organized on 8 September, 2020. A total of Twenty five Universities supported under the Program participated in the meeting. Apart from addressing the queries about the utilization of PURSE Grant, Universities were requested to follow Government's mandate to list the research facilities on the I-STEM (Indian Science Technology and Engineering Facilities Map) to share them

for better utilization and the benefit to all the stakeholders of S&T system in the country. The minutes of the meeting were finalized and circulated to participating Universities for proper implementation of PURSE.

17. DST has supported Innovate for Accessible India in partnership with NASSCOM and Microsoft. We were part of jury for selection of innovations and startups at final level of evaluation.
18. Four meetings of Advisory Committee of New Generation Innovation and Entrepreneurship Development Centre/ Innovation and Entrepreneurship Development Centre (New Gen IEDC/IEDC) were organized at Velammal College of Engineering and Technology Madurai, ITS Engineering College, SRM Institute of Science and Technology, Kattankulathur, Chennai, and Manav Rachna International Institute of Research Faridabad, Haryana to review the Innovation and Entrepreneurship related activities. It was observed that 65 innovative student projects were supported in the four New Gen IEDC / IEDC Center. The committee also observed that 10 patents were filled and 20 startups were setup by the student's team. The committee satisfied with the progress of all the four New Gen IEDC/ IEDC Center.
