



# Indian Institute of Space Science and Technology (IIST) NEWSLETTER

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Vol.6, No. 1-2, 2021

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## Independence Day Celebration

As India celebrated its 74<sup>th</sup> independence day on 15<sup>th</sup> August 2020, IIST organised a colourful function to mark the occasion in a contained manner due to the pandemic situation. *Dr. V. K. Dadhwal*, Director, IIST hoisted the National Flag at 09 00 AM in the august presence of faculty, PhD scholars, staff and CSIF battalion. After the flag hoisting, National Anthem was recited by all present in the function. Director, IIST, inspected the ceremonious Guard of Honour of CISF Jawans. He delivered the Independence Day speech in which he shared the fact that the institute has completed 10 years of functioning from the present campus as IIST started functioning in its present and permanent campus on 15.10.2010. He went on to cite the challenges faced not only by the institute but the world community in the

current pandemic situation which has usurped humankind as a whole. As an academic institute, IIST has faced the challenge of conducting regular classes to its students who are spread out even in the country's remotest locations. For this purpose, various arrangements have been made and fresh semester classes changed to online mode. He mentioned that even in this restrictive period, construction works such as SAC building, underpass etc could progress well. He thanked all the personnel and staff who have worked in the campus and from their homes to keep the institute functional during the unavoidable days of lockdown. After the speech, soulful patriotic song rendered by CISF personnel enthralled the audience. The program concluded with the distribution of sweet packets.

programmes as well as his contributions to the country in various capacities. *Dr. Kasturirangan* started his lecture by lauding the efforts of *Dr. B. N. Suresh*, Chancellor and Founder Director of IIST, for giving the institute its initial shape and also praised the current Director *Dr. V. K. Dadhwal* and Registrar *Dr. Y. V. N. Krishna Murthy* for their stellar efforts in guiding IIST.



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*Dr. Kasturirangan* introduced important facets of the National Education Policy 2020 and dwelt on its long term impacts. He remembered the first generation doyens and founding Scientists/Engineers of ISRO who were educated in India, such as *Dr. A. P. J. Abdul Kalam, Prof. U. R. Rao, Shri. R Aravamudan, Prof. Bhavsar, Prof. E. V. Chitnis, and Shri. P. P. Kale*, all of them contributed immensely to the development of ISRO. He spoke about the need for a new education policy due to the increasing demands of the country in infrastructure, agriculture, medicine and other critical areas, and for fulfilling the high aspirations of our countrymen. He opined that the National Education Policy should address the aspirations mentioned above, especially towards achieving greater heights of national economic growth by maintaining social justice and equality. The young population will naturally aspire for improved and high quality higher education and better standard of living, and hence the NEP is the need of the hour. He stressed the importance of improving the current education system in India by incorporating the conventional Science and Technology courses with some of emerging areas like Data Science, Artificial Intelligence, Machine Learning etc. Keeping in mind the need for the holistic education, the NEP has suggested a flexible course structure with multiple entries and exit provisions. In addition to the conventional three year degree courses plus two year postgraduate courses, the NEP provides opportunities to students to avail four year honors plus one year specialised Master level course with an exit option after 3 years where, a student can exit after the end of

second or third year of UG course and complete it after some years by retaining the earlier credits. The above flexibility will help many students to complete their degree courses after many years of initial enrolment if they were forced to discontinue it for unavoidable reasons. In the NEP framework, a student will be able to take courses across all disciplines, making the whole education system a truly holistic one. Keeping in mind the need to focus on research and innovation, the NEP has suggested the immediate need to set up National Research Foundation (NRF) which will liberally fund Colleges/ Universities in Science /Technology/ Medicine /Agriculture /Arts / Humanities domains. He stressed the necessity to integrate more disciplines in the current professional or general education institutions to evolve into multidisciplinary educational institutions by 2030. He also spoke about setting up of Higher Education Commission of India (HECI) for ensuring adequate quality checks while dispensing high quality education in academic. He also spoke about the need to have a 'Human + Artificial Intelligence Interactive System' for educating students in remote areas during difficult times.

*Dr. Kasturirangan* spoke at length about the personality and towering contributions of *Prof. Satish Dhawan*, who led ISRO for 12 long years created the unique ISRO system and set ISRO on its high achievement path with the help of a dedicated team like *Dr. A. P. J. Abdul Kalam*. He completed his brilliant and lucid talk by recalling with joy and gratitude the humane side of *Dr. A. P. J. Abdul Kalam* when the latter hosted him as the country's First Citizen at the Rashtrapathi Bhavan.



## SSPACE Inductions

Small spacecraft Systems and PAYload CEnter (SSPACE) IIST conducted an induction programme for the students of B-Tech Batch of 2019. Students were asked to form teams of 5-8 members and come up with the preliminary design proposal for a Nano-satellite mission of their choice. There was overwhelming responses with teams presenting interesting proposals, like military surveillance, studying Coronal Mass Ejections and alternatives to glaciological studies. After that students were provided with materials and references to design every subsystem and encouraged to seek the guidance of seniors for any technical difficulties they faced. The subsystems that needed to be developed include Payload Science, Command and Data Handling

(CDH), Electrical Power Supply (EPS), Communications, Attitude Determination and Control (ADCS), Mission Design and Orbital Mechanics, Structures, Thermal and Propulsion. These areas require interdisciplinary efforts, and students from all three branches - Aerospace, Avionics and Engineering Physics- have to be involved. In this connection, an introductory meeting was held virtually over Zoom and the final proposals were consolidated over a span of 2 weekends. Out of the 15 teams that registered initially, 9 presented the detailed design of their payload and subsystems. In total, about 25 students spanning across all branches were inducted to work on SSPACE's indigenous missions and collaborative research with international partners.

### *Congratulations*



**Dr. K. Sivan**, President, GB, IIST / Secretary DOS / Chairman of ISRO and **Dr. B. N. Suresh**, Chancellor, IIST were honoured with the prestigious 2020 '*IEEE Simon Ramo Medal*' for their outstanding leadership in developing national space program of India and for pioneering space technology. This award is for their exemplary work in the field of Systems Engineering.



## Zeroing In



The summer of 2020 saw the birth of an initiative by 'The Sounding Rocket' in collaboration with the IISTAA, 'Zeroing In - The Science Podcast'. The podcast is aimed to primarily focus on curating short and impactful discussions with researchers in the discipline of Science. The team aims to bridge the pronounced gap between the two crucially interested and capable sections of the society - the school students with their academic mentors, and the scientists / researchers in the graduate schools. So far in the first season of the podcast, interactive sessions have been conducted with some of the esteemed professors of the institute to get an insight into their stupendous work and research on distinct fields of scientific research, including Semiconductor Physics (Dr. Jinesh K. B.), Networking and Communication (Dr. B. S. Manoj), Astronomy and Astrophysics (Dr. Anand Narayanan),

Spaceflight Mechanics (Dr. R.V. Ramanan), Atmospheric Sciences (Dr. Govindan Kutty M.), and Chemical Sciences (Dr. Sreejalekshmi K. G.). The intention is to bring the student community of IIST closer to state-of-the-art in diversified fields through these sessions. As a grand finale to the first season, a live interaction session with Dr. B.N. Suresh, Chancellor and Founder-Director of IIST, former Director Vikram Sarabhai Space Center (VSSC), (Recipient of the prestigious "Padma Shri" in the year 2002 and "Padma Bhushan" in the year 2013) and students from multiple schools across India was conducted. The session provided a rare opportunity to be engaged directly with one of the first-generation scientists of the Indian Space Research Organisation (ISRO). The team is confident that the participants would have acquired many ideas from this interaction.

## Learning Management System in IIST

Due to the COVID-19 pandemic situation, the students of IIST were asked to leave the campus and proceed to their hometown on 16 March 2020. In order to ensure the continuation of all academic activities and complete the previous even semester of 2019-2020 session, the institute

immediately moved to the realm of online teaching, which required grouping of students, monitoring, tracking, interaction, evaluation, and effective reusability of developed course contents. To conduct online classes effectively, IIST implemented LMS based open-source LMS MOODLE - Modular Object-Oriented Dynamic Learning Environment, the most popular learning management system with hundreds of millions of users worldwide and supported by a global community of dedicated users. The LMS is also supported by a mobile application for offline learning. IIST hosted the MOODLE LMS platform in the IIST server and made it accessible from the web link <https://moodle.iist.ac.in/> The installation of the same was duly completed by Computer System Group while the design, configurations and implementation was accomplished successfully by the IIST LMS team in record time. The IIST LMS encompasses all the major activities of eLearning, such as course organisation, content creation, course delivery, assessment, and evaluation. The lectures were delivered to the students by the institute faculty using video conference software. Furthermore, the above-said lectures were recorded and uploaded in the IIST's YouTube channel (<https://www.youtube.com/c/IndianInstituteofSpaceScienceandTechnology>) as private videos for the benefit of students who have low bandwidth network connection and also for all the students to be able to revisit the course content. For the odd semester of the current academic year 2020-2021, the internal assessments such as Quizzes (I & II), class tests, assignments, as well as the end Semester Examinations-December 2020 were conducted using LMS Moodle and video conferencing software. Question papers were uploaded in the LMS Moodle by the faculty and the students in turn uploaded their answers papers in the LMS Moodle. The students were proctored through the video and audio mode during the assessments. The above-said examinations were conducted in a smooth and effective manner with the support of students, faculty members, invigilators, CSG and IIST Online Examination Committee. The issues related to poor network connectivity, power failure and LMS Moodle problems faced by a section of the students during the online examinations were handled separately and were duly resolved.

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## Extracurricular Activities



The documentary film “Travancore Observatory - Hidden in the Mists of Time”, scripted and directed by Dr. Anand Narayanan, Dept. of Earth and Space Sciences, IIST won two awards in the 10<sup>th</sup> National Science Film Festival held in November 2020, for the best researched film, and for the best technically visualized film.

# Constitution Day Celebration @ IIST



Dr. V. K. Dadhwal, Director, IIST leading the reading of Preamble of the Constitution of India

Constitution Day was celebrated on 26<sup>th</sup> November 2020 in IIST to commemorate the adoption of the Indian Constitution. *Dr. V. K. Dadhwal*, Director, unveiled the 'Preamble Wall' that has been set up in the Library. Director led the reading of the Preamble at 11.00 AM. The celebration was organized by following the Covid protocols. As part of the 70<sup>th</sup> Year of the Adoption of the Indian Constitution, IIST has organized an online talk on "Constitution and Constitutionalism: The Essence and Spirit of Indian Constitution" by *Prof. G. Gopakumar*, Central University of Kerala, Kasaragod on 28.10.2020.

## Superannuation



*Dr. R V Ramanan*, Adjunct Professor, Dept. of Aerospace Engineering, IIST and Outstanding Scientist, VSSC has superannuated in September 2020 after 36, long and successful career at ISRO and IIST respectively. *Dr. Ramanan* joined ISRO in 1984 as Scientist/Engineer at the Vikram Sarabhai Space Research Center (VSSC), after completing his M.Sc in Mathematics from Madurai Kamarajar University, Madurai. He served VSSC, ISRO for 26 long years in various capacities till he joined IIST as adjunct professor in 2010. During his VSSC tenure *Dr. Ramanan* also completed his Ph.D degree in Mathematics from University of Kerala. At VSSC, he held various positions such as, (a) Deputy Project Leader (Mission), Moon Impact Probe Project, Chandrayaan-1, (b) Deputy Head, Flight Mechanics Division (c) Section Head, Advanced Mission Section (d) Deputy Project Director, SBL (Space Borne Lidar) Project, and Deputy Project Director (Descent Mission), Human in Space Programme (HSP) etc. After joining IIST as an



adjunct Professor in Aerospace Engineering Department. *Dr. Ramanan* was offering courses related to Space Flight Mechanics at undergraduate and postgraduate level. He has supervised many undergraduate and postgraduate student's projects and also guided PhD students. In order to appreciate his academic contributions, past students of Aerospace Engineering Department have initiated a lecture series titled "Singular Arcs" to discuss about the unique career paths occupied by them. **IIST fraternity wishes *Dr. Ramanan* very happiest and healthy retired life.**

## Space Technology Innovation and Incubation Cell (STIIC) @ IIST



Vasishtha Research Private Limited was formally admitted to STIIC. The focus areas include Non Destructive Testing, Robotics and Manufacturing of Composite Materials.

In tune with the directives from UGC and AICTE and with the approval of Governing Council and Board of Management, IIST, a Space Technology Innovation and Incubation Cell (STIIC) is initiated at IIST with the mission to foster the spirit of innovation among students and to bring up successful entrepreneurs. STIIC will promote among students (i) Innovation and entrepreneurship by converting and translating technology ideas (ii) Translation of results in various disciplines of science and engineering into products, processes and services for commercial exploitation (iii) Integrating teaching, learning, research, and innovation with real-world needs, and (iv) Efforts to accelerate our nations ability to innovate and lead a knowledge-driven economy for the larger benefit of humanity. While the emphasis of the STIIC is on Space related innovations / technologies, it covers all areas of science and technology in harmony with the Nation's interest. STIIC will provide incubates with physical, technical and networking supports and services to assist product innovations and development, simulation and prototyping, pilot experimentation, product software testing, training, and other technology related work, in which there is considerable overlap with the institute's mandate.

# Conferences/Symposia Organised at IIST

## NCMST-2020

The Department of Chemistry, IIST organised the 8<sup>th</sup> Edition of 'National Conference on Recent Trends in Materials Science and Technology (NCMST-2020)' during 7 to 9 December 2020 on virtual platform. Joining the 100<sup>th</sup> anniversary of Polymer Science, commemorating the publication of the seminal article by *Hermann Staudinger*, IIST proudly joined the global celebrations by keeping the focal theme of the conference as 'Polymer Science and Technology'. The conference was well received by the research community with more than 300 delegates attending the lectures given by leading material scientists/ professors in the country on the latest developments in different areas of Materials Science and Technology. Poster competitions were also conducted and prizes conferred for best posters with eight specific themes.

## Outreach programs/workshops/Lectures organised

### SINGULAR ARC Lecture Series

Inspired by the teaching and research works of *Dr. R. V. Ramanan*, who superannuated in September 2020, alumni group from the Department of Aerospace Engineering, along with faculty coordinators *Dr. Devendra Prakash Ghate* and *Dr. K. Satheesh*, organised a lecture series titled "Singular Arc".

Following lectures were organised in this series during the aforementioned time period;

(1) Mr. Jyothish R Pillai: 'A brief introduction to atmospheric re-entry trajectory design and analysis' (2) Mr. Yashwanth Nakka: 'Guidance (aka. Motion Planning) for Spacecraft Swarms' (3) Mr. Padmanabha Prasanna Simha: 'Human Cough Aerodynamics – An Experimental Study' (4) Mr. Aaditya Chaphalkar: 'Developing a CFD Solver for Aerospace Applications' (5) Mr. Sandeep Kumar Singh: 'Leveraging Manifold Structures for Efficient Trajectory Design'

### AICTE-INAE Distinguished Visiting Professorship

Lecture series by *Prof. V. Radhakrishnan*, AICTE-INAE Distinguished Visiting Professor (former Emeritus Professor, IIST, Professor IITM) was arranged as listed below;

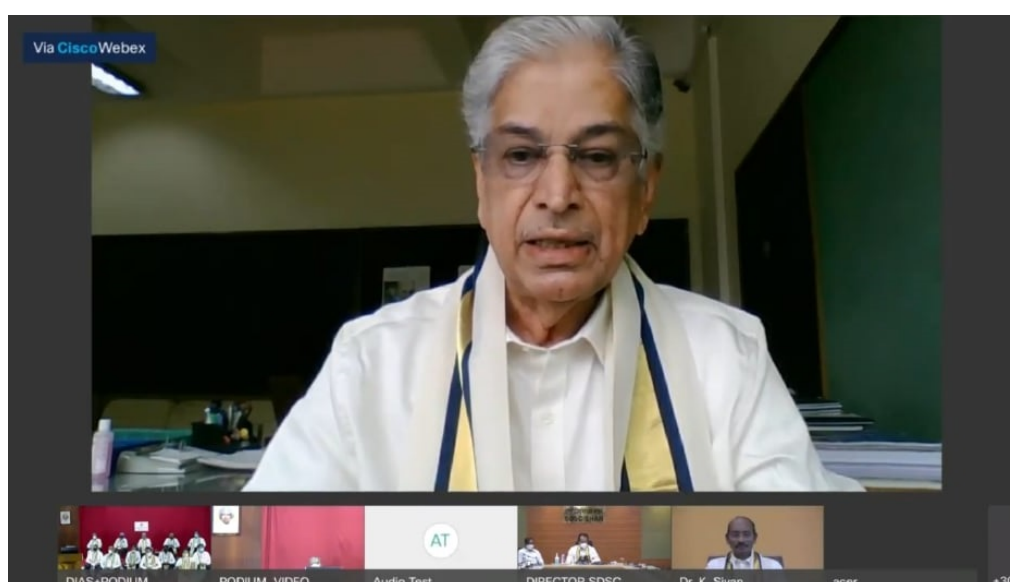
(1) 'Design in Engineering: Covering Design Thinking and Design steps in Engineering Design' on 9<sup>th</sup> June 2021 (2) 'Manufacturing Challenges in Aerospace Sector' on 24<sup>th</sup> June 2021 (3) 'Advances in Metrology' on 25<sup>th</sup> June 2021

**Department of Chemistry** organised a guest lecture on 'An Overview of the Chemical Rocket Propellants for (Indian) Space Programs' by Prof K.N. Ninan during 8-9 February 2021.

**Dept. of Earth and Space Science** organized the following programmes:

- (1) AICTE sponsored a five days 'Faculty Development Programme on Advanced Geo-computational Techniques (AI & Computing for Remote Sensing' & GIS) during 2 - 6 Nov. 2020.
- (2) 'GIS Day Special Online Lecture' on 19 November 2020 by *Dr. V. K. Dadhwal* on Growth, Trend and Challenges of Geospatial Tools and Techniques.
- (3) An online demonstration of 'Application of GIS and Remote Sensing' was organised for school children from Thiruvananthapuram. Drawing / mapping competitions in online mode was also conducted in phased manner during December 2020.
- (4) 'IX IIST Astronomy and Astrophysics School' was organised for selected 90 Masters students throughout the country during 18-28 Dec 2020. Faculty members from ESS Dept. gave lectures in the school.
- (5) Two outreach discussion and interaction sessions with the public called 'Ask an Astronomer' in association with Astronomical Society of India-Public Outreach and Education Committee on 12 Nov 2020, 13 Dec 2020.

## IIST Convocation 2020



Dr. B. N. Suresh, Hon. Chancellor, IIST addressing the audience during 8<sup>th</sup> IIST Convocation

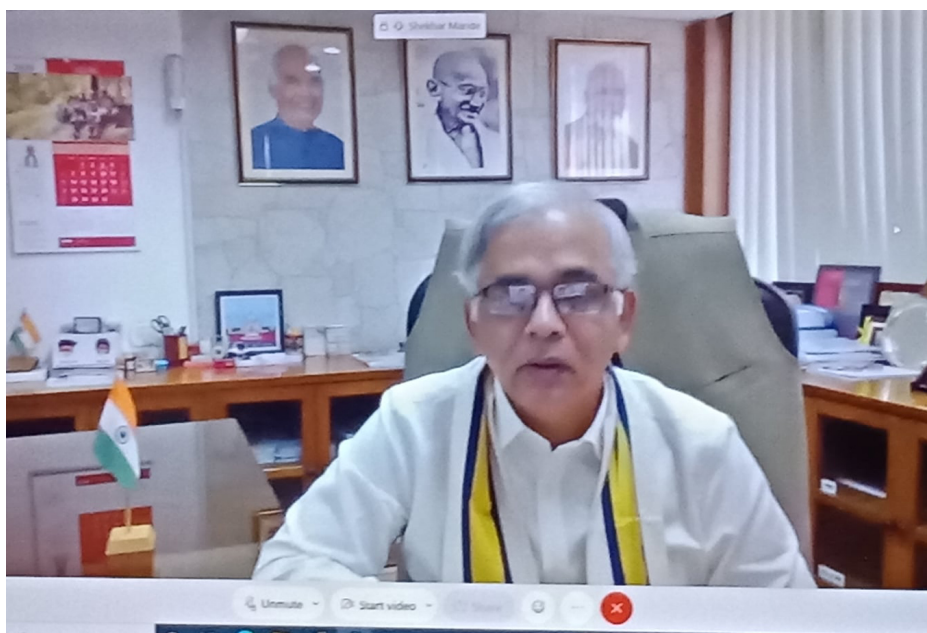
The eighth convocation of IIST was held on 16<sup>th</sup> December, 2020 through the virtual online mode with the help of augmented reality by retaining the feeling of the graduation ceremony. The convocation meeting was presided over by the Honourable Chancellor *Dr. B. N. Suresh*. *Dr. Shekhar C. Mande*, Director General, CSIR was the chief guest and he delivered the eighth IIST convocation address. Director & Chairman of BOM, IIST, *Dr. V. K. Dadhwal*, welcomed the dignitaries, graduating

students and other invitees and presented the report on IIST for 2019-20. The Director started his speech by introducing the chief guest *Dr. Shekar C Mande* and highlighted his academic accomplishments. He spoke about how IIST successfully organised virtual classes and conducted end semester examinations for the 2019-2020 academic year. He elaborated about the online admission process undertaken by IIST to admit postgraduate and PhD students for 2020-2021 academic year. Director spoke



about B.Tech admission 202-21 from IIT's JEE advanced, where 147 took admissions to three different UG programs at IIST. He informed the audience about various achievements that faculty and students of IIST have made in research and innovations. He informed that Ms. Garima Agarwal, IIST B.Tech (Aerospace Engineering) graduated last year, bagged *Dr. A. P. J. Abdul Kalam* award for topping MS in Aerospace Engineering from CALTECH as *Prof. Satish Dhawan* scholar. *Dr. Dadhwal* also spoke about IIST's participation in ISRO's projects such as Gaganyaan / Electric propulsion and

starting of Advanced Space Technology Cell at IIST. He added that this centre would enable IIST faculty and ISRO Scientists to take up futuristic projects which ISRO may take up in years to come. He mentioned that, since its inception, more than 1000 students from IIST have joined ISRO and are making a mark in their assignments. *Dr. Dadhwal* highlighted IIST's international collaborative projects and joint research activities with University of Colorado, USA, Nanyang Technology, Singapore, and Taiwan. He concluded his speech by wishing all graduate students a bright career.



Dr. Shekhar C. Mande, DG, CSIR, Delivering the Eight IIST Convocation Address

*Dr. K. Sivan*, President, Governing Council, IIST, Secretary DOS and Chairman, ISRO started his address by congratulating all graduates and asking them to remember the sacrifices made by their parents and faculty to bring them up to this level. He laid out the challenges at ISRO for those who will be joining and the need for futuristic ideas. He praised IIST alumni for their contribution for the last ten years to ISRO. He told the audience about their commitment, vision and boldness in tackling new problems in various

Centres of ISRO. *Dr. Sivan* projected the need for IIST faculty and students to interact closely with ISRO Centres for futuristic technology. He showered praise on faculty who are actively contributing to ISRO in many projects, especially in Gaganyaan and Electric propulsion. *Dr. Sivan* elaborated about the establishment of Advanced Space Technology Group at IIST and hoped that faculty and students will use it to collaborate more closely with ISRO Centres. *Dr. Sivan* further spoke about the Space Commission's

approval for the conversion of IIST into the Institutes of National Importance. Chairman also spoke about the opportunities in space technology which is about 370 billion economy, and the important role India's Space program has to play to tap most of these. He further spoke about recent reforms in space sector undertaken to stimulate the economic growth of the country and has urged IIST to be part of all emerging activities of ISRO. He informed that recently established IN-SPACe will bridge gap between ISRO, the private industries and academia. He spoke about the need of young India tapping this vast potential and told that the IN-SPACe will facilitate private industries and academia in building satellites and he wanted IIST to take the lead as it is a part of DOS family. He ended his speech by asking young graduates to dream of achieving the impossible and ended his speech by congratulating the graduating students and asked them to leave a mark in their careers.

The Honourable Chancellor, *Dr. B. N. Suresh* started his speech by telling his involvement with IIST since its inception as founding Director and then as Chancellor. He took pride that IIST alumni have started putting their imprints at various ISRO Centers as more than 1000 Scientists / Engineers have joined ISRO and doing exceptionally well. He spoke about the availability of opportunities for those who could not make it to ISRO. He remarked that IIST alumni are not only shining in ISRO Centres but also are making a mark in higher studies, management and start-ups. He congratulated IIST faculty and students for their various accomplishments and told them the importance of interdisciplinary research in Science and Technology. *Dr. Suresh* emphasised the need for taking up many new areas of Science and

Technology by the youngsters and quoted *Dr. A. P. J. Abdul Kalam* about his vision to make India a developed nation which, he said will be achieved soon. *Dr. Suresh* quoted Swami Vivekananda "the learning never ends till a man stands on his own leg". He remarked that learning begins after graduation, and there are tremendous opportunities and challenges in the world to tackle. *Dr. Suresh* ended his speech by wishing all graduating students a great future and recalled *Dr. Kalam's* words for everyone to leave footprints and not dragging it to achieve impossible by working very hard and sincerely.

*Shri. S. Somanath*, Director, VSSC, the Guest of Honour, congratulated the graduating students and spoke about future challenges at ISRO. He urged students to keep contacts with their teachers and informed about his continuing interactions and connections with his alma mater IISc, Bangalore and the teachers who taught him. *Shri. Somanath* spoke about the review meeting of GSLV Mark III where he found many IIST students actively participating and trying to make a mark. He further added that, when they took a survey regarding performance of IIST students at various Centres of ISRO, he found that most of them are doing excellent in proposing new ideas, taking up challenges and showing leadership qualities. He further elaborated about the upcoming challenges in ISRO's launch vehicle technology, miniaturization of systems, satellite technology, where futuristic ideas are required. He hoped that IIST students can make a mark in these areas so that ISRO can reach much higher in their missions. *Shri. Somanath* concluded his speech by congratulating and wishing graduating students for a great future in ISRO.



Glimpses of 8<sup>th</sup> IIST Convocation in Online Mode

Degrees and prizes were awarded virtually. *Mr. Subham Saha* (Avionics) and *Mr. Kiran M Jayasurya* (Master of Science in Astronomy & Astrophysics) bagged the gold medals for the toppers in U.G and P.G, respectively. Cash Award and Excellence Certificate for the topper in B. Tech Aerospace Engineering was given to *Mr Dibya Kanti Kolui*, and *Ms. Kalepu Harsha Nikhitha* (B. Tech, Avionics) received the Cash Award and Excellence Certificate for best all-round performance in academics, co-curricular and extra-curricular activities. Chief Guest of the convocation, *Dr. Shekar C Mande*, Director General of CSIR, started the 8th convocation address by congratulating all the graduates. He spoke about IIST sending high-quality manpower to ISRO since its inception and their responsibilities. He shared his view that India has great expectations from the young graduates of IIST. He emphasised the need for collective work and recalled IIST's first Chancellor *Dr. A. P. J. Abdul Kalam* how? *Prof. Sathish Dhawan* took the blame for failures and gave

credit to his team members for successes. This team spirit he emphasised is needed, and youngsters must emulate such qualities. He further said that Science teaches us about gaps in our understanding of the world, but this has been addressed by large groups of scientists worldwide. He added that science teaches us as the dominant species of the world, human beings have various responsibilities to live responsibly without wasting natural resources unnecessarily. *Dr. Mande* spoke about the series of confrontations between our species and environment and our expectations about nature to adjust our requirements. He added that we need to correct those for the survival of coming generations. He also asked the newly graduating students have to take those critically and try to fix them. He further elaborated about the difference between good and great teachers in imparting knowledge from the data bank. *Dr. Mande* mentioned the close association of CSIR laboratories and ISRO Centres in the past and present and the



need for such collaborations in areas where the requirement of multidisciplinary experts is unavoidable. He further added that India's all nationally important academic and research institutes need to work closely for addressing India's needs, especially during difficult times like COVID-19. Finally, he ended his speech by wishing graduating students a great future and thanked everyone.

In this convocation, a total of 230 degrees were awarded. Out of these B Tech degrees in three disciplines, were conferred to 119 students (59 students from Aerospace Engineering and 59 students from Electronics & Communication Engineering (Avionics) and one student in Engineering Physics). A total of 20 students from Dual Degree program received B Tech in Engineering Physics and M Tech / MS in their specialisation such as Optical Engineering, Solid State Physics, Earth Systems Science and Astronomy & Astrophysics respectively.

Also, M Tech degrees were conferred on 70 students of which 17 students are from three M Tech programs of Aerospace Department, 27 students from five M Tech programs of Avionics Department, 6 students from one M Tech program of Dept. of Chemistry, 10 from two M Tech programs of Earth and Space Science Department, 5 students from one program of Mathematics Department, 2 students from M Tech program of Physics Department and 3 students from a Master of Science program from the Department of Earth and Space Science. There were about 21 research scholars who received their respective PhD degrees from seven Departments.

The entire ceremony was animated using a host of software. They were put together laboriously by a team of hardworking IIST faculty, student and staff. The result of their hard work and dedication resulted in the successful organisation of the 8<sup>th</sup> convocation during the pandemic period.

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## **Invited lectures given by IIST Faculty in International level seminars/conferences/symposia**

*Prof. A. Chandrasekar*, Outstanding Professor, Department of Earth Space Science Sciences has delivered a talk on 'Tropical Cyclones' in the webinar series organised by Pabna University of Science and Technology, Bangladesh on 7<sup>th</sup> October 2020

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## **IIST @ Schools 2020**

IIST has organised a new edition of IIST@Shools program named 'Beyond the Horizon' from 3<sup>rd</sup> to 7<sup>th</sup> August 2020 in association with Sargakshetra Academy & Charitable Centre. The program aimed to create awareness about space science & technology and instill scientific temper among the school children. The programme was organised in the webinar mode for the 10<sup>th</sup> to 12<sup>th</sup>

standard school students from all over the country. *Dr. V. K. Dadhwal*, Director, IIST has inaugurated the program and delivered the keynote address on 3<sup>rd</sup> August Monday at 1.15 pm. *Dr. Y. V. N. Krishna Murtyi*, Registrar, IIST has delivered a special lecture at 3pm and *Dr. Kuruville Joseph*, Dean Students Activities, has presented a theme lecture at 4.10 pm on the same day. The next four days in different sessions, *Dr. Dhayalan* from Dep. of Aerospace, *Dr. Sreejalekshmi* of Dept. of Chemistry, *Dr. Rajesh V. J*, *Dr. Govindan Kutty*, *Dr. Jagadeep* and *Dr. Anand Narayanan* from Dept. of Earth and Space Science, *Dr. Shaijumon C. S.* from Dept. of Humanities, *Dr. Subramanian Moosath* from Dept. of Mathematics, *Dr. Umesh Kadhane*, *Dr. Jinesh K. B.* and *Dr. Dinesh N. Naik* from Dept. of Physics, were delivered lectures in different dimensions of Space sciences, Science and Technology and its applications. *Dr. Kuruville Joseph*, Dean Students Activities was the Chairman of the program and *Dr. Shaijumon C.S* was the program convenor.

## Republic Day Celebration

*Dr. V. K. Dadhwal*, Director, IIST hoisted National flag at IIST, on 26<sup>th</sup> January 2021 to mark the occasion of 72<sup>nd</sup> Republic Day. Faculty, students and staff participated in the celebration by following the social distancing and other Covid-19 protocols. After receiving the customary salute from the CISF personals, *Dr. Dadhwal* gave an elaborate speech about the developments at IIST since the beginning of the academic year 2020-2021. He congratulated the graduated students and

listed out the achievements made by the students and faculty during the recent past. He explained how the institute ran academic activities and supporting sections despite the pandemic and congratulated the faculty, students, and staff for their joint efforts. After his speech, cultural programmes were presented by the students and CISF personals. At the end of the celebrations, sweets and snacks were distributed to everyone.



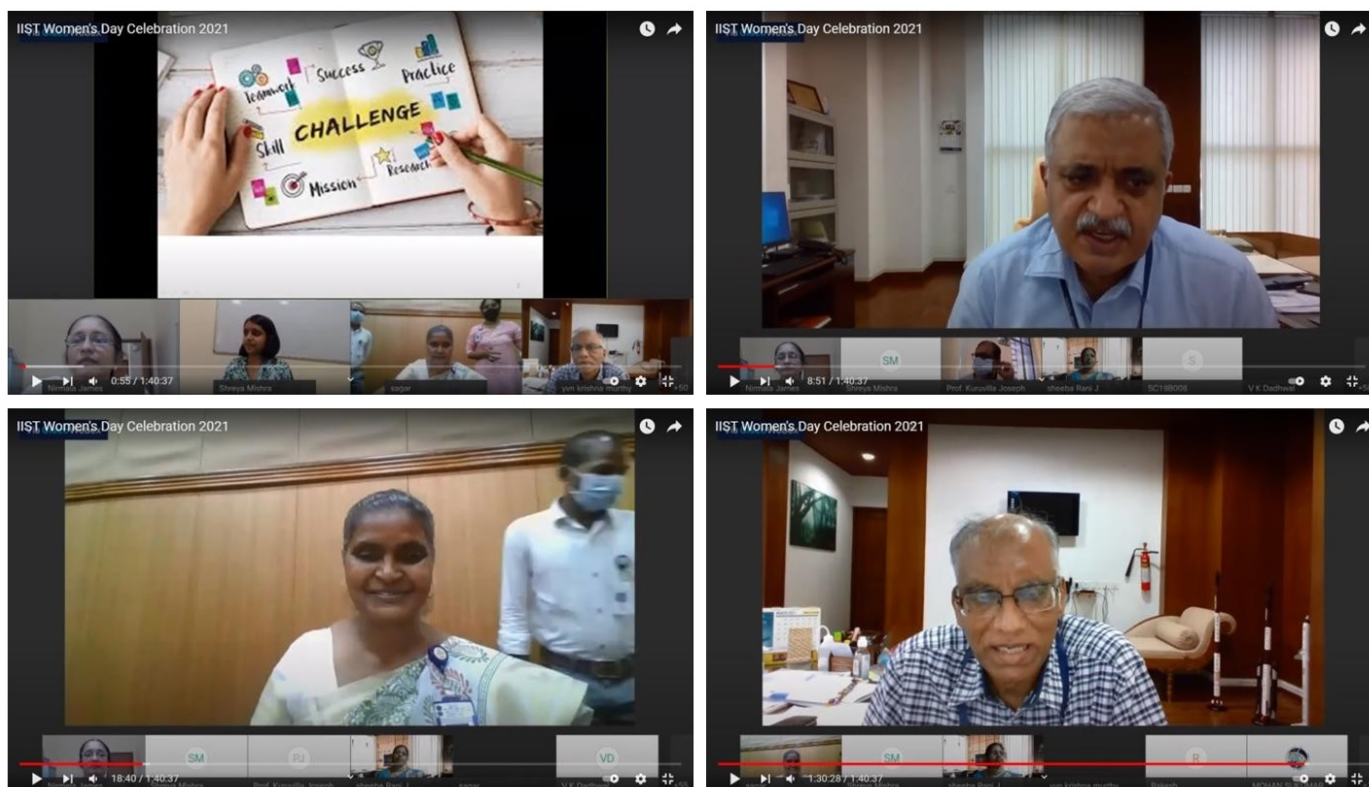
Director, IIST addressing IIST community on the Republic Day

# International Women's Day Celebration at IIST

Gender Sensitization Committee and Internal Complaints Committee organized International Women's Day celebrations on 31<sup>st</sup> March, 2021 in online mode. The gathering was welcomed by *Dr. Nirmala Rachel James*, Chairperson, Gender Sensitization Committee. The function was presided over by *Dr. V. K. Dadhwal*, Director, IIST. *Smt. N Mangala Mani* (Scientist/Engineer, NRSC, ISRO) who was member of the 36<sup>th</sup> Indian Scientific Expedition to Antarctica, was the Chief guest. The campaign theme for International Women's Day 2021 was 'Choose To Challenge'. *Smt. N Mangala Mani* made aware the gathering, the need to take up challenges, in order to excel in professional life. She was selected to be a member of the 36<sup>th</sup> Indian Scientific Expedition team to Antarctica. She was the lone woman in the 23

member team and operated and maintained the ground station for collecting the satellite data in the windiest, coldest, driest and the most isolated place on the earth during the expedition period which lasted for 403 days. Narrating her own experiences in taking up challenges in the profession, she encouraged and motivated the students, faculty and staff. It was indeed great to hear from a person who lived up to the campaign theme of the International Women's Day 2021.

*Dr. Y. V. N. Krishna Murthy* offered the felicitations and appreciated the contributions of women to IIST, Department of Space and also in different walks of life. The meeting was formally concluded by Vote of thanks delivered by *Dr. Sheeba Rani J*, Chairperson, Internal Complaints Committee.



Photographs of International Women's Day Celebration in Online Mode



## Inauguration of Main Entrance Access Road

Main entrance access road for IIST was inaugurated by *Dr. K. Sivan*, Chairperson, Governing Council, IIST, Secretary, DOS and Chairman, ISRO on 8<sup>th</sup> February 2021. *Dr. V. K. Dadhwal*, (Director, IIST), *Shri S. Somanath* (Director, VSSC), *Dr. V. Narayanan* (Director, LPSC), *Shri. D. Sam Dayala Dev* (Director, IISU) and *Shri. S. Kanungo*, Director, STPO graced the occasion



Dr. K. Sivan, Chairman, ISRO Inaugurating the Main Entrance Access Road to IIST

## Sports News

*Dr. K. Sivan*, Chairperson, Governing Council, IIST, inaugurated the Student Activity Center (SAC) on 8<sup>th</sup> February 2021. The SAC comprising a gymnasium, multi-purpose hall, amphitheatre, indoor badminton courts, open gathering area, billiards court, squash court, facilities for table tennis, caroms, chess and other facilities caters to various hobbies of the students.



Inauguration of Student Activity Centre at IIST



Sports Facilities in SAC

## Research Contribution

**A novel contribution to experimental demonstration and investigation of entanglement**



Ms. Soumya Asokan



Dr. J. Solomon Ivan

The superposition principle applies to several physical problems. When the problem involves two or more degrees of freedom, the notion of entanglement emerges, as elucidated by Erwin Schroedinger in 1935. Quantum information processing, quantum communication, and quantum computation, have their basis on entanglement, a consequence of the superposition principle. An even more elementary consequence of the superposition principle, as seen in optics experiments, is the formation of fringes that are readily observed on a screen. An instance being, Newton's rings observed since 1664. Both entanglement and fringe formation are consequences of the superposition principle. Is there a connection? A table top experiment recently carried out at the Applied and Adaptive Optics lab, Department of Physics IIST, demonstrated this link, that is :fringe movement under some considerations, implies entanglement. The experiment also reports maximal two qubit entanglement. For a detailed reading see: Journal of Optical Society of America A, Vol.37, No.5, 825-832 (2020). The work was carried out by *Ms. Soumya Asokan* under the guidance of *Dr. J Solomon Ivan*.



## Faculty Laurels



*Prof. Kuruvilla Joseph* has been listed among the top 2 percent scientists by Stanford University, across the world in all subject fields. The University has cited *Prof. Kuruvilla Joseph* in the Single Year list under the category of citation impact during the single calendar year 2019.

*Dr. Immanuel Raja* received DST-SERB (Govt. of India) startup research grant of Rs.35 lakh for starting research at IIST on the topic "Design of a Transmitter with Integrated Power Amplifier (PA) for Millimeter-wave 5G Bands in 65nm CMOS"

*Dr. Shaijumon C. S.* has written a chapter with *Dr. K. Kasturirangan* 'Economics and Cost Benefit Analysis of Indian Space Programme' in the book entitled 'In Space and Beyond: Professional Voyage of K. Kasturirangan, Edited By B N Suresh, Springer Nature, pp 305-316.

*Dr. Shaijumon C S & Dr. Lekshmi V Nair*, Dept. of Humanities, "Lifeline for Remote India: A Study on Telemedicine Units in India"- Major Research Project awarded by Indian Council of Social Science Research (ICSSR) under the category of Novel and Path breaking research project.

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## Patents Awarded

Fructose Specific Binding Nanoparticle. File No. 4962/CHE/2013 dtd. 01.11.2013. Patent No. 344459. Date of Grant: 19/08/2020, (*Prof. Kuruvilla Joseph*)

Nanoparticles Functionalized with Cholesterol Specific Binding Agents. File No. 2747/CHE/2013 dtd 24/06/2013, Patent No. 350517. Date of Grant: 29/10/2020, (*Prof. Kuruvilla Joseph*)

Multipurpose resilient elastro-magnetic abrasive spheres for fine finishing of surfaces. File No. 3340/CHE/2013. Date of Grant: 08/09/2020 (*Dr. V. S. Sooraj, Prof. V. Radhakrishnan, Dr. Nirmala J.*)





## Students Corner

### Fresher's Day

The freshers day is a time-honoured tradition hosted by the second years for the freshers. This time the freshers day was conducted in online mode. Students from the second year put up a plethora of performances and a bunch of interactive events such as songs, poems, musical performance etc. First-year students introduced themselves and put up many performances. A beat box quiz was also hosted as part of the programme. This was followed by a club introduction session. The representatives of the various clubs of IIST explained the past activities conducted by their respective clubs. The event concluded with a vote of thanks. The online freshers day surely left everyone reminiscing about the good old days at the institute.

### Start-up Activity in IIST by Students

'Vashishtha Research Pvt Ltd', the startup initiative by Mr. Saurabh Chatterjee, Research Scholar, Department of Aerospace Engineering has made significant progress in their developments. The startup aims to contribute positively to the industry 4.0 and the vision of 'Atmanirbhar Bharat'. During the recent past, they have been recognized by many awards and grants including 2<sup>nd</sup> prize Winner of DRDO Dare to Dream Event 2021 in the Startup category and Winner of Niti Aayog Atma-Nirbhar India Challenge 2021 (ANIC)

The startup focuses on the development of state of the art, computer controlled inspection systems that integrate robotic systems and non destructive testing / metrology instruments together with advanced path planning and data integration capabilities through dedicatedly developed advanced 3D Viewer GUI software. The startup has successfully developed custom-made Laser Measurement System, Stockpile Volume Estimation System, Conveyor Belt Volume Estimation System etc., for industries and academic institutes. Presently the startup is focused on the development of robotic solutions and cable driven parallel robotic systems for industry/agricultural applications.

### PhD Awarded

Sl.No	Name	Department	Topic	Supervisor
1	Haritha H	Chemistry	Strategies to develop materials for lithium storage in high-performance lithium-sulphur batteries and pseudocapacitors	Dr. J. Mary Gladis
2	Vinitha M V	Physics	On the quantification and control of internal energy in energetic radiation interaction with PAHs	Dr. Umesh R Kadhane
3	Mohan Kumar L	Aerospace Engineering	Investigations on the critical parameters influencing the properties and functional performance of ablative composites	Dr. P. Chakravarthy

4	Preetam Hazra	Physics	Resistive RAM and Neuromorphic Systems: Role of Ions and Interface States	Dr. Jinesh K B
5	Suresh Kumar P	Avionics	Modelling and Control of Inverted Magnetic Needle System: A New Problem in Control Theory	Dr. Priyadarshnam
6	Richu Sebastian C	Avionics	Load Commutated Current Source Inverter FED AC Motor Drives with Open-End Stator Windings	Dr. Rajeevan P. P
7	Aneesha U	Earth & Space Sciences	Study of Spectral Signatures and Accretion Dynamics of Black Holes During Outbursts	Dr. Samir Mandal
8	Karthika S	Physics	Study of the Effect of Nonlocal Hopping and Resetting in Asymmetric Exclusion Process	Dr. Apoorva Nagar
9	Veena V S	Physics	A Solid State NMR Study of the Local Mobility of Water and Water Induced Dynamics of Linkers on Silica Surface	Dr. Jayanthi S
10	Namitha Issac	Earth & Space Sciences	Early Stages of High-Mass Star Formation: A Multiwavelength Investigation	Dr. Anandmayee Tej
11	Sarath Babu	Avionics	Software Defined Disruption Tolerant Networks	Dr. B. S. Manoj
12	Pramod Panchal	Physics	Investigations on Wave Front Sensing for Propagation Characteristics of Turbulence Impacted Beams	Prof. C. S. Narayanamurthy
13	Darshika Singh	Physics	Developing unconventional Holography and Imaging methods using Intensity and Polarization Correlation: Spatial Statistical Optics Approach	Dr. Rakesh Kumar Singh

## INAE Innovative Student Project Award



**Ms. Gayathri Girish** (Utilizing Energy Function and Variational Inference Training for Designing a Novel Graph Neural Network Architecture, Guide: *Dr. Deepak Mishra*)



**Mr. British Sontakke** (Magnetic Transduction Schemes and Electronics for Angular Position Sensing of Through-Shafts over Full Circle Range, Guide: *Dr. Anoop C. S*)



**Ms. Siri Gadipudi** (Grid Connected Open-end Winding Induction Generator System with Series Reactive Power Compensation for Wind Energy Systems, Guide: *Dr. P.P. Rajeevan, Dr. R. Sudharshan Kaarthik*)

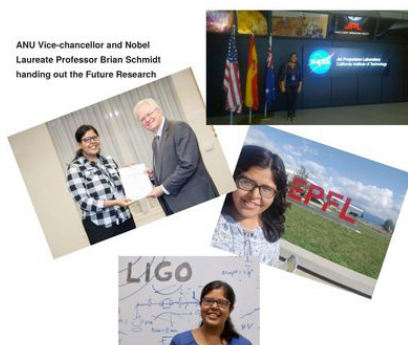
B.Tech project completed by Mr. Varshith Reddy supervised by *Dr. R V Ramanan* was conferred innovative project award by INAE

Dissertation of *Mr. Pravin Kumar*, M.Tech Materials Science and Technology, jointly supervised by *Dr. Chakravarthy* and *Dr. Narayana Murthy* from VSSC, has been conferred the innovative project award by INAE

## IEEE Future Energy Challenge Design Contest

*Mr. GDDV Sai Pawan* and *Mr. Harshith V Reddy* secured second place in IEEE Future Energy Design Contest, held in Aug 2020 for their paper on Battery Chargers for All Wheel Drive Electric Vehicles. Mentor: *Dr. R. Sudharshan Kaarthik*

*Mr. Mallikarjun Kompella* and *Ms. Pradya Yadav* secured second place in IEEE Future Energy Design Contest, held in Aug 2020 for their paper on Integrated Battery Chargers for Single Phase Systems. Mentor: *Dr. R. Sudharshan Kaarthik*



**Ms. Jigyasa Nigam** who was a dual degree **B.Tech (Engineering Physics)** student @IIST (2015-2020) and graduated with **MS Solid State Physics** has won the **MARVEL INSPIRE** Potentials Master's Fellowship and undertook her one year Master thesis project at the **COSMO group at École polytechnique fédérale de Lausanne (EPFL), Switzerland** under *Prof. Michele Ceriotti*. The research work carried out by her during her master's project at EPFL resulted in two high quality publications.

## INAE Best Project Awards won by students of IIST

**1. Ms. Gayathri Girish** Topic: 'Utilizing Energy Function and Variational Inference Training for Designing a Novel Graph Neural Network Architecture' Discipline : Computer Engineering & Information Technology, Guide(s): *Dr. Deepak Mishra and Dr. S. Moosath*

**2. Mr. British Sontakke**, Topic: 'Magnetic Transduction Schemes and Electronics for Angular Position Sensing of Through-Shafts over Full Circle Range', Discipline: Electronics & Communication Engineering, Guide: *Dr. C. S. Anoop*



3. *Ms. Siri Gadipudi*, Topic: 'Grid-Connected Open-end Winding Induction Generator System with Series Reactive Power Compensation for Wind Energy Systems', Discipline : Energy Engineering, *Guide: Dr. P. P. Rajeevan*

4. *Mr. Varshith Reddy*, Topic: 'Iterative Patched Conic Technique for Lunar Transfer Trajectories', Discipline : Aerospace Engineering, *Guide: Dr. R.V. Ramanan*

## **Future Energy Design Contest-2020 conducted by IEEE IA/IE/PELS Jt. Chapter Kerala.**

The competition was open to more than 80 educational institutions across India and the registered team members attended a webinar and workshop on Electric Vehicle Battery Charging System Design.

**First prize (Gold):** 🏆 *Mr. Mallikarjun Kompella* (4th year, ECE), *Ms. Pragya Yadav* (M.Tech, Power Electronics, 2<sup>nd</sup> year) - IIST, Thiruvananthapuram. **Second prize (Silver):** 🥈 *Mr. G G D V Sai Pavan* (M.Tech, Power Electronics, 1st Year), *Mr. V. Harshith Reddy* (M.Tech, Power Electronics, 1st Year) - Indian Institute of Space Science and Technology, Thiruvananthapuram.

## **InnoCentive**

*Mr. Murtaza Hamid and Mr. Prakhar Gupta* (First year students) won the first prize in the ideation challenge organised by **InnoCentive**, which is an open innovation and crowd sourcing company with its headquarters in Waltham, MA and their EMEA headquarters in London, UK. They enable organizations to put their unsolved problems and unmet needs, which are framed as 'Challenges', out to the crowd to address.

## **Best Paper / Poster Award**

*Ms. Sreekala K*, Research Scholar, Dept. of Chemistry, got best paper award for the paper - Graphene-Lithium Cobalt Vanadate as Synergistic Immobilizer of Polysulfides for Advanced Lithium-Sulfur Batteries, Sreekala K, Haritha H, Mary Gladis J, in International Symposium on Advanced Materials (ISAM-2021) organized by Materials Research Society of India (MRSI) - Trivandrum Chapter and Sree Chitra Tirunal Institute of Medical Science and Technology (SCTIMST) on March 26 -27, 2021 .

Best Paper award for the paper titled "An Improved response function based stochastic meshless method for Reliability analysis of Euler-Bernoulli Beams" in International Conference on Systems, Energy & Environment-January 2021 (Authors: Ms. Aswathy and Dr. Arun C.O.)

'Detection of Basic Aminoacids Using WS2- AgNP Nanocomposite' *Ms. Neema P M, Ms. Ann Mary Tomy, Ms. Karthika Sunil and Dr. Jobin Cyriac*, 8<sup>th</sup> National Conference on Recent Trends in Materials Science and Technology (NCMST) - 2020 organised by Department of Chemistry, IIST Thiruvananthapuram.

## Nirmaan

The social outreach club of IIST aimed to ignite the scientific curiosity among high school kids in government schools, NIRMAAN conducted online session in Government School, Chullimanoor in the Jan- May 2021 session. The team Nirmaan also distributed masks and sanitizers to the children of Balika Sadanam, an orphanage in Thiruvallom, Thiruvananthapuram

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## Webinar Organized

Department of Sociology, University of Kerala in collaboration with Department of Humanities, IIST had organized a 5-day National Webinar on *Covid-19- Vulnerability, Adaptation and Capacity Building Among Tribal Communities* from March 15-19,2021. COVID-19 pandemic has left one of the most neglected sections of Indian society - the tribal communities even more vulnerable. The tribes of India with a high degree of socio-economic marginalization are severely impacted during this global pandemic due to lack of access to effective health care, preventive measures, monitoring and early-warning systems. This national level webinar has attempted to understand the way the tribal society has faced this new virus, how they reconstructed their life, their coping strategies and the interventions of government and other agencies. The webinar was inaugurated by Prof. (Dr.) P.P Ajayakumar, Pro. Vice Chancellor, University of Kerala. Dr V. K. Dadhwal, Director, IIST was the guest of honor. Keynote address was delivered by Prof. Viriginus Xaxa, Former Professor, Delhi School of Economics, University of Delhi, New Delhi.

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## IIST Alumni News

IIST Alumni Association, in collaboration with IIST and qBraid, organised a two part event with the following session:

**a. Introductory Session on Quantum Computing (9<sup>th</sup> Jan 2021):** An introductory session on Quantum Computing was taken by Mr. Aritra Sarkar, (B.Tech.ECE (Avionics) 2013) as a necessary step before moderating the panel discussion on the same topic. Shri. Aritra is a Ph.D. candidate in the department of Quantum and Computer Engineering, Delft University of Technology.

**b. Moderated Panel Discussion on Towards the Second Quantum Revolution (16<sup>th</sup> Jan 2021):** Panel discussion on Quantum Computing was open to the general public and had experts from industry and academia. The following panelists participated in the session

- Dr. Kanav Setia (B.Tech. (Aerospace) -2011) is the CEO of qBraid, a quantum computing start-up that he co-founded. Dr. Setia received his Ph.D. in Physics from Dartmouth College. His research focuses on developing efficient quantum algorithms for solving quantum chemistry problems. He was one of the earliest contributors to Open Fermion, Google's quantum computing repository. He has worked with IBM where he developed a new quantum algorithm which is

among the most efficient quantum algorithms. He also holds a joint patent with the IBM team for his work on a different quantum algorithm.

- *Dr. Urbasi Sinha* is a Professor at the Light and Matter Physics group at the Raman Research Institute in Bangalore, India. She is heading India's first project on satellite-based secure quantum communications (Quantum Experiments using Satellite Technology).
- *Dr. J. Solomon Ivan* is a physicist and Associate Professor at the Department of Physics, IIST. His current research delves into problems in Classical & Quantum Optics and Quantum Information Theory and follows both a theoretical and experimental approach.

### **IISTAA Interaction with Class of 2021 (18<sup>th</sup> April, 2021)**

The IIST Student Alumni Relations Cell (SARC) in collaboration with the IISTAA and Vaave organised a new series of talks and interactive sessions named 'Life After Graduation'. The talks were aimed to introduce the IIST community to career paths in and beyond ISRO focusing on IIST Students who graduated in 2021. The following speakers shared their experiences:

- *Ms. Rachana Reddy* (B.Tech. ECE (Avionics), 2012): She is a development engineer with the satellite company Berlin Space Technologies in Germany. She narrated her journey after graduation from IIST.
- *Mr. Gagan Agrawal* (B.Tech. (Aerospace), 2012) is a space consultant and entrepreneur. He shared his experience in a myriad of fields including space consultancy, startup building, sounding rockets (he was part of the Vyom team, IIST's very own sounding rocket launched from Thumba), Electric Vehicles etc. He narrated his life experience and how he managed to combine his passion for entrepreneurship and finance with his expertise in the space industry. The interactive session was well received and the students got their doubts cleared.

### **IISTAA TVM Chapter Orientation (11<sup>th</sup> April 2021)**

IISTAA Thiruvananthapuram Chapter organised an interaction session with IIST Students who graduated in 2020 and joined in ISRO Centres in 2021. The focus was on welcoming the students to the alumni association and answer to their queries about the job, the life in different cities. The session familiarised the newest alumni with the activities, goals and modus operandi of IISTAA as well as gave them a platform to pitch in their suggestions as the freshers in this community.

### **Interaction with Director IIST (30<sup>th</sup> April 2021)**

Director IIST addressed the alumni on 30<sup>th</sup> April. He explained the recent changes happening in IIST. Major announcements were made in relation to the change in the fee structure and the scholarships schemes. The address was followed by a general discussion where the questions from alumni were addressed.

*Dr. Rashmi M*, former PhD student, IIST received the coveted 'Nobel Laureate Jane Addams Inspiring Women of the year 2021' award instituted by Institute of Education and Research, Tamilnadu for her contributions to research in Sociology.



## आईआईएसटी में जुलाई से दिसंबर 2020 तक राजभाषा नीति के कार्यान्वयन संबंधी प्रमुख कार्यकलाप

### हिंदी पखवाड़ा समारोह 2020

हिंदी पखवाड़ा समारोह संस्थान में सितंबर महीने के दूसरे सप्ताह से मनाया गया। **कर्मचारियों के लिए** और संस्थान के छात्रों के लिए विविध प्रतियोगिताएं चलाई गईं। प्रतियोगिताओं के सभी विजेताओं को नकद पुरस्कार एवं प्रमाण पत्र प्रदान किए गए।

### 1. हिंदी कार्यशालाओं का आयोजन

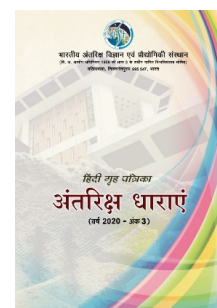
- i) आईआईएसटी में राजभाषा कार्यान्वयन की गतिविधियों के भाग के रूप में, संस्थान के **संकाय सदस्यों के लिए** सितंबर 25, 2020 को एक अर्ध दिवसीय ऑनलाइन हिंदी कार्यशाला का आयोजन किया गया। सत्र का संचालन श्री. के. अनिल कुमार, मुख्य प्रबंधक (राजभाषा), स्टेट बैंक ऑफ इंडिया, पूजप्पुरा ने किया। उन्होंने राजभाषा नीति के प्रभावी कार्यान्वयन के लिए ई - टूल्स विषय पर प्रस्तुतिकरण दिया।
- ii) **सहायकों, वरिष्ठ सहायकों तथा लिपिक वर्गीय कर्मचारियों के लिए** 23 दिसंबर 2020 को एक अर्ध दिवसीय हिंदी कार्यशाला का आयोजन किया गया। श्रीमती सिमी असफ, वरिष्ठ हिंदी अनुवादक, आईआईएसटी ने **हिंदी की प्रशासनिक शब्दावली एवं उसका प्रयोग** विषय पर तथा श्रीमती श्रीजा आर. कनिष्ठ हिंदी अनुवादक, एलपीएससी ने **हिंदी में टिप्पण एवं आलेखन** विषय पर अभ्यास कराया।



*कार्यशाला का संचालन करते हुए श्रीमती सिमी और श्रीमती श्रीजा*

### 2. आईआईएसटी हिंदी गृह पत्रिका 'अंतरिक्ष धाराएं'- तीसरा अंक का ऑनलाइन विमोचन

हिंदी पखवाड़े के दौरान आईआईएसटी की हिंदी गृह पत्रिका **अंतरिक्ष धाराएं** के तीसरे अंक का ऑनलाइन विमोचन किया गया। ई - पत्रिका में आईआईएसटी के छात्रों एवं कर्मिकों के लेख, कविताएं तथा अंतरिक्ष विभाग / इसरो के इतर केंद्रों / यूनिटों के कर्मचारियों से तकनीकी लेख और विविधता से भरे रोचक कृतियों का समावेश किया गया है।



### 3. आईटी सिस्टमों में हिंदी में कार्य करने की सुविधा

संस्थान के आईटी सिस्टमों में हिंदी में कार्य करने के लिए दिसंबर 2020 से कोईन्स सुविधा लागू की गई है। अब क्रय आदेश तथा इतर दस्तावेज जो राजभाषा अधिनियम 1963 की धारा 3 (3) के अंतर्गत आते हैं, द्विभाषी रूप में तैयार किए जाते हैं।

## आईआईएसटी में जनवरी से जून 2021 तक राजभाषा नीति के कार्यान्वयन संबंधी प्रमुख कार्यकलाप

### 1. हिंदी कार्यशालाओं का आयोजन

- i) तकनीकी क्षेत्र के कर्मचारियों के लिए फरवरी 18, 2021 को हिंदी कार्यशाला का आयोजन किया गया। श्री.आर. जयपाल,वरिष्ठ हिंदी अधिकारी, आईआईएसटी ने बोलचाल की हिंदी विषय पर विस्तृत व्याख्यान दिया तथा श्री.एम. जी. सोम शेखरन नायर, वरिष्ठ हिंदी अधिकारी, वीएसएससी ने हिंदी की तकनीकी शब्दावली एवं उसका प्रयोग विषय पर अभ्यास कराया।



- ii) आईआईएसटी में राजभाषा कार्यान्वयन की गतिविधियों के भाग के रूप में, संस्थान के कार्यपालकों (सभी डीन, विभागाध्यक्ष, प्रभाग प्रधान एवं प्रशासनिक क्षेत्र के अधिकारी) के लिए जून 16, 2021 को एक अर्ध दिवसीय ऑनलाइन हिंदी कार्यशाला का आयोजन किया गया। सत्र का संचालन श्री. के. अनिल कुमार, मुख्य प्रबंधक (राजभाषा) स्टेट बैंक ऑफ इंडिया, पूजप्पुरा ने किया। उन्होंने 'राजभाषा हिंदी के लिए ई-टूल्स' विषय पर प्रस्तुतिकरण दिया।

### 2. संस्थान परिसर के वृक्षों का नाम त्रिभाषी रूप में प्रदर्शन

संस्थान परिसर के बड़े वृक्षों के वानस्पतिक नाम, स्थानीय नाम, हिंदी तथा अंग्रेजी नाम प्रदर्शित करते हुए 50 नाम पर लगाए गए।

### 3. संस्थान को राजभाषा अधिनियम 1976 के नियम 10 (4) के अधीन हिंदी का कार्य साधक ज्ञान प्राप्त कार्यालय के रूप में अधिसूचित करना

संस्थान को राजभाषा अधिनियम 1976 के नियम 10 (4) के अधीन हिंदी का कार्य साधक ज्ञान प्राप्त कार्यालय के रूप में अधिसूचित किया गया है। अतः हिंदी में प्रवीणता प्राप्त चार अधिकारियों को निदेशक के हस्ताक्षर से व्यक्तिगत आदेश भेजे गए हैं कि वे अपने आधिकारिक कार्यों में हिंदी का प्रयोग करें।

### 4. नगर राजभाषा कार्यान्वयन समिति द्वारा आयोजित संयुक्त राजभाषा उत्सव में भागीदारी

आईआईएसटी, वलियमला, नगर राजभाषा कार्यान्वयन समिति (कार्यालय - 2) तिरुवनंतपुरम, के सदस्य कार्यालय है और इनके क्रियाकलापों में सक्रिय रूप से भाग लेता है। इसके तत्वावधान में आयोजित संयुक्त राजभाषा उत्सव में संस्थान के कर्मचारियों ने ऑनलाइन रूप से भाग लिया।



श्री. आर. जयपाल, वरिष्ठ हिंदी अधिकारी इसरो / आईआईएसटी में 32 वर्षों की मेधावी सेवा के बाद मार्च 31, 2021 को सेवानिवृत्त हुए। आईआईएसटी न्यूज़ लेटर टीम आपके सुखमय जीवन की मंगल कामना करती है।



## Condolence



With very heavy hearts, the IIST family place on record our heartfelt condolences on the untimely and sad demise of *Shri. Roahith*, a student of the 2020 ECE batch. He was a very bright, cheerful, and mature student who was actively involved in organising various programmes in IIST. We, the IIST family, would like to convey our deepest condolences to the family and friends of *Shri. Roahith*. He will remain in our hearts forever and may his soul rest in peace.



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## Indian Institute of Space Science and Technology

Declared as Deemed to be University under Section 3 of the UGC Act, 1956

An autonomous institute under Department of Space, Govt. of India

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