# SPACE 2024

(SPace, Aerospace and defenCE Conference)

**July 22-23, 2024**

Sheraton Grand Bengaluru Whitefield Hotel
& Convention Center

# Message from General Chair & Co-Chairs

It is a great pleasure to welcome you to the maiden edition of IEEE SPace, Aerospace and defenCE (SPACE) conference being held at Sheraton Grand Bengaluru Whitefield Hotel and Convention Centre, Bengaluru, India. It is a well known fact that technologies used in Space, Aerospace and Defence can be used among these 3 domains with some improvement/modifications. The objective of SPACE is to create a premier interdisciplinary forum for Space, Aerospace and Defence experts, engineers, and researchers to come together to discuss the latest developments in designated technologies. The conference provides a platform for sharing cutting-edge research, exploring innovative approaches, and addressing the technical challenges faced by the Space, Aerospace and Defence organizations.

Conference covers all aspects of Space, Aerospace and Defence technologies (within IEEE's field of interest). The conference program includes Plenary and Invited talks, Technical sessions, workshops, and panel discussions, all aimed at fostering collaboration and driving innovation in Space, Aerospace and Defence.

The conference received 600+ submissions and the TPC has selected a good collection of 300+ papers with acceptance rate of 55% that will be presented during the conference in 43 oral presentation sessions in 9 parallel sessions. The conference has also invited eminent experts and speakers for Plenary and invited Talks, and panel discussions, who will share the excitement of their new findings. Dedicated sessions and a workshops are arranged on the same. An industry exhibit is also organized in which 28 industries are participating to showcase their product, services and recent developments in Space, Aerospace and Defence related technologies. Special sessions on (1) Human in Space, (2) Artificial Intelligence/Machine Learning (AI/ML) Technologies for SPACE, (3) Software Defined Radio (SDR) Technologies for SPACE, (4) Quantum Technologies for SPACE, (5) Women-lead Technology Developments are organized with an aim to provide the latest information on future technologies and encourage participants to develop technologies for the benefit of Humanity. We are pleased that 750+ delegates will be able to congregate and share their knowledge and expertise at a single platform.

SPACE 2024 has initiated 9 pathbreaking initiatives for the benefits of Students/YPs/WIE/Members/Startups/Members viz. (1) 3 Minute Thesis Program, (2) Student Authors Travel Grant, (3) AESS Student member and Faculty Fellowship, (4) WIE Fellowship, (5) upto 52% subsidized registration fees for Students/AESS/AP-S/MTT-S/IEEE Members, (7) upto 20% Early Submission advantage discount to authors who have submitted their manuscript well ahead of paper submission deadline to helped TPC to perform quality review and (8) Free

Workshop Registration to AESS/AP-S/MTT-S Student Members who completed their registration by June 30, 2024 (9) 25% Discount in registration to Startups

The conference has been made possible due to the generous support of our sponsors, DRDO, ANSYS, Boeing, Anritsu, NI, Keysight, Collins Aerospace, TE Connectivity, APC Technology, Centum, MVG, R&S, Airbus, Altair, SSD Polymers, Unified, JV Micoronics, NITTE, IEEE Data Ports, Albatross, Emerson Cuming, CADFEM, Vinvish technologies, ametek, ICON Electromatic, Mouser Electronics, AMP, COMSOL, IEEE AESS, IEEE IEC, IEEE AP-S and IEEE MTT-S. We sincerely thank all of them for their invaluable support.

It would not be possible to organize a conference of such a magnitude without the help of some committed individuals. SPACE 2024 is particularly indebted to the Chief Patrons, Patrons, General Co-Chairs, TPC Chairs, Reviewers, Finance, Publicity, Publications, Sponsorship, Web and several other committees. We convey our gratitude to the eminent Plenary, Invited, workshop and panel speakers. Last, but not the least, our sincere thanks to IEEE AESS, IEEE India Council, IEEE Bangalore Section, IEEE AESS Bangalore Chapter, IEEE AP-S/MTT-S Bangalore Join Chapter and all the Knowledge partners for extending their wholehearted support.

We sincerely hope that all the delegates will have a wonderful time in the conference where each one will be able to make new friends, renew old acquaintances and get technically enriched in this wonderful garden city of Bengaluru. Please make time to visit several historical sites with your friends and family that are around Bengaluru. The organizing committee will make sure that your stay during the conference is pleasant and comfortable and see you all soon!

Mr. Puneet Kumar Mishra

Dr. K Rajalakshmi Menon

Mr. Rajeev Jyoti

Dr. Seema Chopra

General Chair and Co-Chairs, IEEE SPACE 2024

# PROGRAMME

## JULY 22, 2024, Convention Centre

| TIME | PROGRAMME |
|---|---|
| 8.00-9.00 | Registration & Networking |
| 9.00-10.45 | Inauguration (Dr. S Somnath, Secretary, DoS, Dr. Sameer V Kamat, Secretary, DDR&D, Mr. Tom Coughlin, 2024 IEEE President, Shri. M Sankaran, DS & Director, URSC, Prof. Kathleen Kramer, 2025 IEEE President, Prof. Saifur Rahman, 2023 IEEE President, Dr. Mark E Davis, 2022-2023 IEEE AESS President, Dr. K Rajalakshmi Menon, DS & Director, CABS, Shri. Rajeev Jyoti, DS & Director-Technical, IN-SPACe, Dr. Seema Chopra, ED & Sr TF, Boeing India, Shri. Puneet Kumar Mishra, General Chair, IEEE SPACE) |
| 10.45-11.30 | Exhibit Inauguration and Tea/Coffee |
| 11.30-13.00 | Space Plenary-1: Session Chair: Dr S Pal, DS & Former VC DIAT & AD URSC<br>1. Technological Trend in Space Sector: Shri M Sankaran, DS & Director, URSC,<br>2. Technologies for Human Space Flight, Dr. S Unnikrishnan Nair, DS & Director, VSSC,<br>3. Near Future Trends in Space Technology and Applications: Shri. Nilesh M Desai, DS & Director, SAC |
| 13.00-14.00 | Lunch & Exhibit Visit |
| 14.00-14.50 | Space Plenary-2: Session Chair: Shri G Vishwam, DS & Director, LRDE |
| 14.00-14.30 | 1. Learn, Trust and optimize:Scalable Tasking for In-Space Operations: Prof. Maruthi R Akela, UTA, USA |
| 14.30-14.50 | 2. Simulation Superpowers for SPace, Aerospace & defenCE (SPACE): Mr. Shashank Narayan, CTO, AGI |
| 14.50-15.50 | Panel Discussion on "Large Scale Digital Engineering Initiatives for Aerospace & Defence: Opportunities, Challenges and Benefits": Panelists: Dr. K Rajalakshmi Menon, DS & Director, CABS, Dr AVPS Prasad, CE, CEMILAC, Dr. Ranjana N, Director, DFTM, Prof. Puneet Singla, The Pennsylvania State University, USA, Moderator: Aniruddha Mukhopadhyay, Lead Chief Technologist, Ansys |
| 15.50-14.10 | Making India a Semiconductor Product Nation: Dr. Satya Gupta, President, VLSI Soceity of India |
| 16.10-16.30 | Tea/Coffee & Exhibit Visit |

| TIME | PROGRAMME |
|---|---|
| 16.30-17.30 | Panel Discussion on Opportunities for Startups in SPACE: Dr. Tapan Mishra, Founder SISIR Radar, Rohan Ganpati, CEO & CTO Bellatrix, Kishan Thakar, VP, GalaxyEye, Richa Hukumchand, Founder, Pramatra, Akash Yalagach, Co-Founder, KaleidEO, Manu J Nair, Ethereal X, Ms. Saraniya Periaswamy, MD, Agniku, lModerator: Shri. Rajeev Jyoti, IN-SPACe |
| 17.30-19.00 | Space Plenary-3: Session Chair: Dr Mark E Davis, 2022-2023 President, IEEE AESS |
| 17.30-17.50 | Convergence of Technologies through Space-A Personal Note: Dr. M Annadurai, DS & Former Director, URSC, ISRO |
| 17.50-18.10 | Next Generation Technologies in Radio Astronomy including Space based observations: Prof. Yashwant Gupta, Director, NCRA, |
| 18.10-18.30 | Keynote by AVM Premkumar Krishaswami |
| 18.30-18.40 | Modulation distortion EVM and NPR measurements using Network Analyzers, Ayyagari Parvateesam, Keysight |
| 18.40-19.00 | Sustainable Space: Prof. Saifur Rahman, 2023 IEEE President & CEO |
| 19.00-19.30 | AP-S 75 Years Celebrations (Prof. Debatosh Guha, Prof. Branislav M. Notaros, 2024 IEEE AP-S President, Dr. Chandrakant Kumar) |
| 19.30-20.00 | Cultural Program |
| 20.00-21.30 | Gala Dinner |

# SPACE 2024

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# PROGRAMME

## JULY 23, 2024, Convention Centre

| TIME | PROGRAMME |
|---|---|
| 8.00-8.30 | Registration & Networking |
| 8.30-10.30 | Aerospace & Defence Plenary: Session Chair: Dr. S Christopher, 2015-2018 Secretary, DD(R&D) |
| 8.30-8.50 | 1. Ultra Wideband Surveillance Radar: Dr. Mark E Davis, 2022-2023 IEEE AESS President |
| 8.50-9.30 | 2. Plenary Talk: Dr. B K Das, DS & DG (ECS) |
| 9.30-10.10 | 3. AI/ML Techniques Used in Next Generation Combat Aircraft: Dr. Jitendra J Jadhav, DS & Director, ADA, |
| 10.10-10.30 | 4. Boeing & India: Today and Beyond, Nikhil Joshi, MD, Boeing Defence India, |
| 10.30-11.00 | Tea/Coffee & Exhibit Visit |
| 11.00-12.00 | Panel Discussion on AI/ML Driving the Future of SPACE: Dr. Abhay A Pashilkar, Director, NAL, Prof. Manoj Choudhary, VC Gatishakti Vishwavidyalaya, Mr. Adishesha C S, Collins Aerospace, Dr. Vincent Socci, Blue Origin, Moderator: Dr. Seema Chopra, ED & SrTF, Boeing |
| 12.00-13.00 | Panel Discussion on Futuristics Technologies for Space: Anupam Sharma, Director, DSP, Shri D K Singh, DS & Director, HSFC, Shri R V Nadagouda, DD, ICA, URSC, Shri. Pankaj D Killedar, Director, MCF, Moderator: Shri. Puneet Kumar Mishra , BoG, IEEE AESS |
| 13.00-14.00 | Lunch & Exhibit Visit |
| 14.00-15.00 | Role of Standards in SPACE: Mr Ravindra Beniwal, DD, TED, BIS, Dr. Vinod Chippalkatti, President, SEBU, Centum, Mr. Tarun Gupta, Chief Business Manager, Aerospace, Defence & Govt BU, NI-India, Mr. Parag Jyoti Garg, AD, IN-SPACe, Moderator: Ms. Pamela Kumar, Ex-DG TSDSI & BoG, IEEE SA |
| 15.00-16.00 | Opportunities for Industries in Space, Aerospace and Defence (SPACE) Ecosystem: Panelists: Mr. Ashish Rajvanshi, CEO, Adani Aerospace & Defence, Mr. K. H. Ganapathy Krishnan, GM(MCSRDC), HAL, Dr. Subba Rao Pavuluri, CMD, Ananth Technologies Ltd, R Muralidharan, CTO, TASL, Mr. B.M. Chandrakanth, Sr. GM-Marketing & Sales, AMPL Moderator: Dr V S Hegde, Former Scientific Secretary, ISRO & CMD Antrix |

| TIME | PROGRAMME |
|---|---|
| 16.00-16.30 | Tea/Coffee |
| 16.30-17.30 | Collaboration and Funding Opportunities for Academia in SPACE Ecosystems : Panelists: Dr. M A Paul, DD, RESPOND, ISRO HQ, Mr. Brijesh Soni, DD-IN-SPACe, Prof. A R Harish, IIT-K, Dr. Vivek Raghav, DIITM, DRDO, Moderator: Dr. M B Mahajan, DD, ASA, SAC |
| 17.30-18.30 | Panel Discussion on IEEE's Role in Advancing Technology for Policy Making towards AtmaNirbhar & Viksit Bharat: Penalist: Shri. A S Kiran Kumar, 2015-2018 Secretary,DoS, Dr. G Satheesh Reddy, 2018-2022 Secretary, DDR&D, Dr. Shailesh Nayak, Director, NIAS, Moderator: Prof. Saifur Rahman, 2023 IEEE President & CEO |
| 18.30-19.30 | Awards Function & Valedictory |
| 19.30-21.00 | Gala Dinner |

## July 22, 2024: 9.00-11.00 Hrs: Convention Hall

# INAUGURAL SESSION

Chief Guest: **Dr. S. Somanath** Secretary, DoS & Chairman, ISRO

Dr. S. Somanath is a Distinguished Scientist (Apex Grade) and Secretary, Department of Space (DoS), Chairman, Space Commission and Chairman, ISRO since 14 January 2022. Dr. S. Somanath having a career spanning nearly 38 years, is an expert in the field of space technology and systems engineering of launch vehicles and has made significant contributions in many areas.

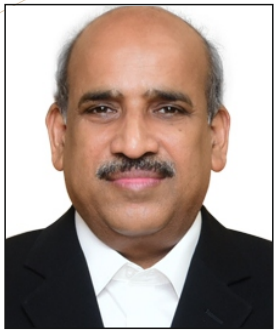
As Secretary of DoS, he piloted the National Space Policy, facilitated IN-SPACe activation, engagement of ISRO with NGPE and start-ups in space sector and enabled NSIL to aggregate user demands, take up commercial activities including Launch vehicle production and spacecraft operations. Chandrayaan-3 landing near the south pole of Moon was a great success under his leadership. The Aditya-L1, XpoSat, INSAT-3DS, NVS-01, Oceansat, GSAT-24 and commercial PSLV & LVM3-OneWeb missions are some of the recent successes. Under his leadership Small Satellite Launch Vehicle (SSLV) and Test Vehicle (TV) were developed and landing experiments of the Re-usable Launch Vehicle (RLV-LEX) was accomplished. He plays a crucial role in the architecture of Gaganyaan program for sending Indians to Space and achieved the first Test Vehicle flight for mission abort demonstration. Currently he is focussed on the Space Vision-2047 missions including Gaganyaan, Chandrayaan-series and other exploration missions, Bharatiya Antariksha Station development and human mission to Moon. As Director of Vikram Sarabhai Space Centre (VSSC) during 2018-21, he was responsible for Launch vehicle technology development where, LVM3-M1/Chandrayaan-2 mission was a major accomplishment. He spearheaded the development of critical systems for the Gaganyaan programme, development of Small Satellite Launch Vehicle, Re-usable Launch Vehicle & Air-Breathing technology programs. He was the Director of Liquid Propulsion Systems Centre (LPSC) during 2015-18 where, the development and qualification of C25 stage was completed and successfully flown in LVM3-D1 flight. He was the Project Director

when the Experimental flight of LVM3-X / CARE mission was successfully accomplished on 18th December, 2014. Dr. S. Somanath took his B. Tech in Mechanical Engineering from TKM College of Engineering, Kollam, Masters in Aerospace Engineering from Indian Institute of Science, Bangalore and PhD from IITM Chennai. He has been bestowed with many Honorary Doctorates from universities including, Centurion, Karunya, Satyabhama, SRM, Uttarakhand, Sarada Birla, Bangalore, JNTU, KUHS, Amity & DY Patil Vidyapeeth. He is a Fellow of Indian National Academy of Engineering (INAE), Fellow of Indian National Academy of Science (INSA), Fellow of Aeronautical Society of India (AeSI), Astronautical Society of India (ASI) and a member of International Academy of Astronautics (IAA). He is the President (Elect) of AeSI and President of Society of Aerospace Quality and Reliability (SAQR). National Aeronautics Prize from AeSI, Space gold medal from ASI, gold medal from Aerospace Engineering Department, Platinum jubilee award and distinguished alumni award of IISc, Bangalore, distinguished fellow award from IIT Kanpur and Karnataka Rajyotsava award were some of the awards presented to him. He has published papers in journals and conferences in the area of structural dynamics and control, materials modelling, dynamic analysis of separation mechanisms, vibration and acoustic testing, launch vehicle design and launch services management. Dr. S. Somanath has been a delegate to UN-COPUOS, vice President of International Astronautical Federation (IAF) and participated in International Astronautical Congress (IAC) held at different countries.

Chief Guest : **Dr. Samir V Kamat,** Secretary DDR&D and Chairman DRDO

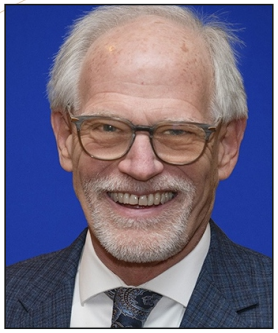
**Dr. Samir V Kamat** has taken over as Secretary DDR&D and Chairman Defence Research and Development Organisation (DRDO) on 26th Aug 2022. Dr. Kamat completed his B. Tech (Hons) in Metallurgical Engineering from IIT Kharagpur in 1985 and PhD in Materials Science and Engineering from The Ohio State University, USA in 1988 and joined DRDO in 1989. Dr. Kamat has provided leadership and direction to several critical materials programmes in DRDO such as development of high strength steels for naval ship hulls, development of high temperature titanium alloys and nickel base superalloy based components for aeroengines,development of tungsten heavy alloys for kinetic energy penetrators, development of fused silica radomes for missile seekers, development of armour solutions for personnel as well as combat vehicles and stealth materials for airborne and naval applications. These have found use in various systems being developed by DRDO laboratories. In addition, he has spearheaded the development of naval systems such as advanced light weight torpedo, anti-torpedo decoy systems, autonomous underwater vehicles, advanced hull mounted and towed array sonars for ships and fuel cells based air independent propulsion systems for submarines. Dr. Kamat is a Fellow of the Indian National Academy of Engineering (INAE) and Institution of Engineers India (IEI). He is a recipient of Distinguished Alumni Award from IIT Kharagpur, Metallurgist of the Year Award from Ministry of Steel and Scientist of the Year Award from DRDO. He has published more than 180 papers in International peer-reviewed journals.

Chief Guest : **Shri M Sankaran,** DS & Director, URSC, ISRO



**Shri M Sankaran** is a Distinguished Scientist of Indian Space Research Organisation(ISRO). He took over as Director of U R Rao Satellite Centre (URSC), the lead Centre in the country for design, development and realisation of all satellites of ISRO, on June 01,2021. He is currently leading satellite fraternity to realise various types of satellites to meet the national requirements in the areas like communication, navigation, remote sensing, meteorology and inter-planetary exploration. Before taking over as Director, URSC he was functioning as Deputy Director for Communication and Power Systems Area in URSC and spearheading the developments. During his 35 years of experience in URSC/ISRO, he has contributed primarily in the areas of Solar arrays, Power systems, Satellite Positioning System and RF communication systems for Low Earth Orbit(LEO) Satellites, Geostationary Satellites, Navigation Satellites and Outer Space Missions like Chandrayaan, Mars Orbiter Mission (MOM) and others. He was instrumental in successful realisation of the 70V bus for the ISRO satellites, unique design for power generation and distribution systems for the interplanetary mission like Chandrayaan-1 & 2, Mars Orbiter Mission, Astrosat, etc. He has fostered the industries in the country for fabrication and testing of solar panels, battery systems, etc. Among his works in the recent years, he is leading the efforts towards to miniaturisation of avionics systems, indigenisation of electronics & power system components, micro/mini satellite bus development, etc. He is also spearheading the avionics system design, realisation and qualification for the Gaganyaan Programme. He joined the ISRO Satellite Centre (ISAC), currently known as URSC after obtaining his Master's degree in Physics from Bharathidasan University, Tiruchirappalli in 1986. He has been awarded ISRO's Performance Excellence Award for the Year 2017 and ISRO Team Excellence awards in 2017 and 2018. He has about 50 publications to his credit in Peer Reviewed Journals and International conferences.

Guest of Honor : **Thomas Coughlin**, 2024 IEEE President



**Tom Coughlin,** President, Coughlin Associates, is a digital storage analyst and business and technology consultant. He has more than 40 years in the data storage industry with engineering and senior management positions at several companies. An IEEE Life Fellow, Dr. Coughlin has many publications and six patents. He is also the author of "Digital Storage in Consumer Electronics: The Essential Guide," which is now in its second edition with Springer. Tom is a regular storage and memory contributor for forbes.com and media and entertainment organizations. Coughlin Associates consults and publishes books and market and technology reports, including The Media and Entertainment Storage Report and an Emerging Memory Report, and puts on digital storage-oriented events. Tom has served in numerous IEEE volunteer leadership roles, including President of IEEE-USA, Director of IEEE Region 6, Vice President and Board member of the IEEE Consumer Technology Society, Chair of the Santa Clara Valley IEEE Section, and Chair of the Consultants Network of Silicon Valley. He is also active with the Storage Networking Industry Association (SNIA) and the Society of Motion Pictures and Television Engineers (SMPTE).

Guest of Honor : **Prof. Saifur Rahman,** 2023 IEEE President

**Professor Saifur Rahman** is the founding director of the Advanced Research Institute at Virginia Tech, USA, where he is the Joseph R. Loring Professor of Electrical and Computer Engineering. He also directs the Center for Energy and the Global Environment at the university. He is a Life Fellow of IEEE and an IEEE Millennium Medal winner. He was the president of the IEEE Power and Energy Society (PES) for 2018 and 2019. He is the founding editor-in-chief of the IEEE Electrification Magazine and the IEEE Transactions on Sustainable Energy. He has published more than 160 journal papers and has made more than 600 conference and invited presentations. His h-index is 64 with over 20,000 citations. In 2006, he served on the IEEE Board of Directors as the Vice President for Publication Services and Products. He is a distinguished lecturer for IEEE PES and has lectured on renewable energy, energy efficiency, smart grid, energy internet, blockchain, and IoT sensor integration in more than 30 countries. He is the founder of BEM Controls, LLC, a Virginia (USA)-based software company providing building energy management solutions. He served as the chair of the US National Science Foundation Advisory Committee for International Science and Engineering from 2010 to 2013. His research at Virginia Tech has been funded by Duke Energy, Tokyo Electric Power Company, the US National Science Foundation, the US Department of Defense, the US Department of Energy, and the State of Virginia (USA). He has a Ph.D. in electrical engineering from Virginia Tech.

## Guest of Honor : **Prof. Kathleen A Kramer,** 2025 IEEE President

**Kathleen A. Kramer** is a Professor of Electrical Engineering at the University of San Diego in California, USA. She worked to develop new engineering programs as a founding member of the faculty and eventually became the chair of electrical engineering, then serving as Director of Engineering (2004-2013), providing academic leadership for all of the university's engineering programs. Her teaching interests are in the areas of signal processing, mechatronics and robotics, and communication systems. She has also been a member of technical staff at several companies, including ViaSat, Hewlett Packard, and Bell Communications Research. She is a Distinguished Lecturer for the IEEE Aerospace and Electronic Systems Society (AESS) and is a past vice president of the Society. She is a Fellow of ABET and a leader in the development of criteria for cyber security, mechatronics, and robotics. Kathleen served on the IEEE Board of Directors as IEEE Secretary and chair of Governance and IEEE Region 6 (Western USA) Director. She was also chair of the 2023 IEEE Ad Hoc Committee on Innovating Funding Models. She received the B.S. degree in electrical engineering magna cum laude with a second major in physics from Loyola Marymount University, and the M.S. and Ph.D. degrees in electrical engineering from the California Institute of Technology.

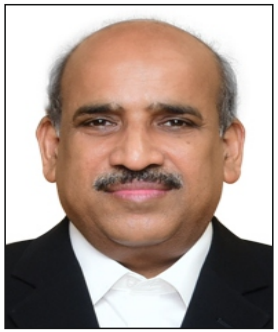
Guest of Honor : Dr. **Mark E. Davis**, President AESS

**Dr Mark E Davis** has over 50 years' experience in Radar technology and systems development. He has held senior management positions in the Defense Advanced Research Projects Agency (DARPA), Air Force Research Laboratory, and General Electric Aerospace. At DARPA, he was the program manager on both the foliage penetration (FOPEN) radar advanced development program and the GeoSAR foliage penetration mapping radar. Dr Davis has written two textbooks: Foliage Penetration Radar published in 2011, and Ultra Wideband Surveillance Radar, published in 2021.

## July 22, 2024: 11.30-13.00 Hrs: Convention Hall

## Space Plenary-1: Session Chair: Dr S Pal, DS & Former VC DIAT & AD URSC

1. **Technological Trend in Space Sector:** Shri M Sankaran, DS & Director, URSC



Shri M Sankaran is a Distinguished Scientist of Indian Space Research Organisation(ISRO). He took over as Director of U R Rao Satellite Centre (URSC), the lead Centre in the country for design, development and realisation of all satellites of ISRO, on June 01,2021. He is currently leading satellite fraternity to realise various types of satellites to meet the national requirements in the areas like communication, navigation, remote sensing, meteorology and inter-planetary exploration. Before taking over as Director, URSC he was functioning as Deputy Director for Communication and Power Systems Area in URSC and spearheading the developments. During his 35 years of

experience in URSC / ISRO, he has contributed primarily in the areas of Solar arrays, Power systems, Satellite Positioning System and RF communication systems for Low Earth Orbit(LEO) Satellites, Geostationary Satellites, Navigation Satellites and Outer Space Missions like Chandrayaan, Mars Orbiter Mission (MOM) and others. He was instrumental in successful realisation of the 70V bus for the ISRO satellites, unique design for power generation and distribution systems for the interplanetary mission like Chandrayaan-1 & 2, Mars Orbiter Mission, Astrosat, etc. He has fostered the industries in the country for fabrication and testing of solar panels, battery systems, etc. Among his works in the recent years, he is leading the efforts towards to miniaturisation of avionics systems, indigenisation of electronics & power system components, micro/mini satellite bus development, etc. He is also spearheading the avionics system design, realisation and qualification for the Gaganyaan Programme. He joined the ISRO Satellite Centre (ISAC), currently known as URSC after obtaining his Master's degree in Physics from Bharathidasan University, Tiruchirappalli in 1986. He has been awarded ISRO's Performance Excellence Award for the Year 2017 and ISRO Team Excellence awards in 2017 and 2018. He has about 50 publications to his credit in Peer Reviewed Journals and International conferences.

## 2. **Technologies for Human Space Flight,** Dr. S Unnikrishnan Nair, DS & Director, VSSC

Dr. S Unnikrishnan Nair, Distinguished Scientist, took charge as Director, VSSC in February, 2022 and played pivotal role in leading the team for the successful launching and insertion of the prestigious Chandrayaan-3 and Aditya L1 satellites into the intended orbit. Under his leadership, the maiden Test vehicle flight for in-flight demonstration of Gaganyaan Crew escape system under critical transonic flight condition was successfully carried out. As Director, VSSC and Chairman, Project Management Council of Gaganyaan, he is currently spearheading many important activities of Gaganyaan including the development of human rated launch vehicle. He is concurrently holding the charge of Director of Indian Institute of Space science and Technology (IIST), Thiruvananthapuram. He is the Founding Director of Human Space Flight Centre (HSFC) of ISRO, Bangalore. He is a graduate in Mechanical Engineering from MA College of Engineering, Kerala University, post graduate in Aerospace Engineering from IISc, Bangalore and holding PhD in Mechanical Engineering from IIT(M), Chennai. He also secured an MA in Telecommunications and Space Law from NALSAR, Hyderabad. He started his career in Vikram Sarabhai Space Centre (VSSC), Trivandrum in 1985 and was involved in the development of PSLV, GSLV and LVM3. He served as Deputy Director, Structures Entity of VSSC concurrently with the human space flight technology development. He served as the Programme Director of Advanced Space Transportation System, a unified entity created for integrating the various technology development activities of Human space flight, Reusable launch vehicle, Air breathing propulsion and Advanced test vehicle. He played a key role in the Spacecapsule Recovery Experiment (SRE), which was the maiden experiment of bringing back an orbiting satellite to a pre-destined destination on earth. He has made seminal contributions in developing the Parachute and other Recovery systems for a re-entering vehicle for the first time in the country. He has also played a pivotal role in lining up various national agencies and finalizing process for the safe recovery of SRE from sea. He was associated with Human Spaceflight Programme from its study phase since 2004 and was the Project Director for Pre-project technology development activities. He led the Project Team for defining the Vehicle configuration, Systems engineering and in identifying various critical technology development areas to initiate the pre-project activities. He was the Payload Director for CARE [Crew module Atmospheric Re-entry Experiment], where a full-scale Crew Module, was flown successfully in the LVM3X-CARE sub-orbital mission held in December 2014. He has significantly contributed in defining and configuring the Crew Escape System, a vital system in manned missions for crew rescue under any contingency and was the Mission Director for the first Crew escape system - Pad abort test flight held in July 2018. As founding Director of the youngest Centre in ISRO, the Human Space Flight Centre, HSFC, he has led the Gaganyaan activities and played a key role in establishing the Astronaut Training Centre at Bangalore in HSFC at Bangalore. He has received ISRO Team Excellence Award for his contributions to SRE, ISRO Excellence Award as Team Leader for

CARE in 2014, ISRO Individual Merit award for the year 2014 for his contributions towards technology development for manned space mission, ISRO Excellence Award as Team Leader for Crew Escape System Pad Abort Test in 2018, Aatma Nirbharta Award from Indian Society of Analytical Science in 2022 and National Systems Gold Medal from Systems Society of India in 2022. He is a member of many professional bodies and is the national president of the Indian National Society for Aerospace and Related Mechanism (INSARM). He has authored several papers including 12 for international journals/conferences. He is holding a patent and received an honorary doctorate for the contributions to human space flight activities. He is the co-editor of a text book on Finite element analysis for undergraduate students, which was published in October 2023. He is an ardent nature lover and works for its preservation. He has also published a few short stories in leading Malayalam periodical.

**Abstract:** The Indian Space Program has successfully achieved several milestones over the last 60 years including operationalization of launch vehicles, maturity in remote sensing and communication satellites. We also have executed challenging missions like Chandrayaan missions, Mars Orbiter mission, Aditya L1 mission etc. With this technological background, human space flight is the logical next step for Indian Space Programme, which would create new opportunities for scientific research and international collaboration in space exploration. Human spaceflight, however, do present a host of technological challenges which will be discussed in the presentation, along with appropriate methodologies to address them. The Human spaceflight pre-necessitates a robust and reliable launch system that can reliably deliver astronauts and essential payloads into space. Once in orbit, life support systems sustain the astronauts with proper environment, providing food, water and managing waste. The spacecraft must be designed to shield astronauts from cosmic radiation, micrometeoroids and provide protection during the intense force and heat of re-entry. Other critical technologies include efficient propulsion modules, reliable communication, medical equipments as well as precise navigation and guidance systems. Safety systems are also paramount, encompassing emergency protocols, escape mechanisms, and redundant systems to safeguard astronauts in the event of equipment failures or emergencies. Comprehensive training programs and simulations prepare astronauts for the physical and psychological demands of spaceflight and the ability to execute critical procedures under pressure. The re-entry and deceleration systems form another key technology that have to be developed and qualified. The entire gamut of such diverse technologies have to be developed with a strong emphasis on System Engineering. The components and systems have to be tested in various levels subjected to different environmental conditions, necessitating a wide range of test facilities. The talk gives a glimpse of all the technical points mentioned above, highlighting the unique challenges faced and the novel methods adopted to overcome the same.

## 1. **Near Future Trends in Space Technology and Applications:** Shri. Nilesh M Desai, DS & Director, SAC

Shri Nilesh M. Desai, Distinguished Scientist, has assumed charge with effect from 1st January, 2021, as the Director of Space Applications Centre (SAC), Ahmedabad, a lead centre of Indian Space Research Organisation (ISRO), for design and development of space-borne instruments and associated applications. Born on 1st April, 1964 at Navsari, Gujarat, Shri Nilesh Desai, is a top ranker and gold-medalist of 1985/86 BE (Electronics & Communication) batch of L. D. College of Engineering, Gujarat University, Ahmedabad, India. Immediately thereafter, in 1986, he started his professional career at SAC/ISRO, Ahmedabad in ISRO's Microwave Remote Sensing Programme (MRSP). In his thirty-five years of dedicated and illustrious engineering and research career, he has been involved in design and development of ISRO's Microwave Radar Systems, and realization of entire gamut of advanced and synergetic applications involving earth observation, navigation and communication technologies for societal benefits, governance and strategic uses. Shri Nilesh Desai is a highly accomplished Engineer, who has successfully led the design and development of ISRO's airborne & Spaceborne Microwave Remote Sensing Payloads like RISAT-1 C-Band Synthetic Aperture Radar (SAR), Oceansat-2 and Scatsat-1 Scatterometers, Chandrayaan-2 Orbiter SAR and Lander Altimeter and Hazard Detection & Avoidance Processing System, Airborne SAR for Disaster Management, MiniSAR etc. and associated Signal & Data Processing and Remote Sensing Applications. He was also responsible for the design & development of different types of real time data processing techniques, User Receivers for indigenous NavIC (Navigation with Indian Constellation) satellites and SatCom Hub Earth Stations and user terminals for Mobile, Broadband & High Throughput communication satellites. He has also served as Deputy Director of Microwave Remote Sensors Area (MRSA) and SatCom and SatNav Advanced Applications Area (SNAA/SSAA). He was elevated as Associate Director, SAC with effect from 17 Dec., 2018, wherein he led the centre with a persuasive leadership style. All these years, he has also provided leadership and direction in developing and strengthening space infrastructure and its applications. Many State-of-the-Art technologies utilized in pilot projects for governance, development and strategic use involving synergetic satellite Communication & Navigation (called ComNav) based applications were developed under his leadership. He has made considerable efforts in popularizing and proliferating usage and applications of indigenous navigation technologies like NavIC and Gagan for commercial, governmental and strategic users. He has also mentored the design of world class

courses on Satellite Communication (SatCom) and Global Navigation Satellite Systems (GNSS), under the aegis of United Nations Centre for Space Science and Technology Education for Asia and the Pacific (UN-CSSTEAP). He has been the main author or co-author of about 175 technical papers presented at various national and international conferences within and outside India. He has also contributed significantly in more than 225 technical reports of SAC/ISRO. He has represented ISRO/India at various International forums at Austria, China, France, Germany, Israel, Russia, Singapore, South Africa and United Kingdom, including delegations at International Committee on Global Navigation Satellite System (ICG) meetings & conferences. Most recently, he organized and presided over the ICG-14 held in India during Dec.-2019. He is the recipient of ISRO Performance Excellence Award-2018, ISRO Individual Merit Award-2010 and ISRO Team Award for RISAT-1 Payload Design, Realization and Data products for the year-2012. He is an advocate of outreach activities related to Indian Space Programme, in general and SatNav, SatCom and Remote Sensing & Earth Observation Programmes, in particular. He is energetic & enthusiastic and spends considerable time and energy in giving direction towards various professional and outreach activities like Vikram Sarabhai Space Exhibition, Smart India Hackathon (SIH), Popular lectures in Engineering & Science on National Science & Technology days etc. As Chief Nodal Officer of ISRO/DOS for SIH and as a mentor, he has been spearheading the organization of various outreach activities for school and college students, at SAC/ISRO. His fields of interest and research include Data Acquisition and Digital Signal Processing for Radar, Navigation & SatCom signals, DSP and Microprocessor architectures, FPGA/ASIC hardware and VLSI designs, embedded systems and software quality assurance. He is an active and contributing life member of many professional societies like Indian Society of Remote Sensing (ISRS), Indian Society of Geomatics (ISG), Astronautical Society of India (ASI) and Indian Society of Systems for Science and Engineering (ISSE). Presently, he is serving as the National President of ISRS Executive Council, and the Vice President of ISSE-Ahm. Chapter.

## July 22, 2024: 14.00-14.50 Hrs: Convention Hall

## Space Plenary-2: Session Chair: Shri G Vishwam, DS. & Director, LRDE

1. **Learn, Trust and optimize:** Scalable Tasking for In-Space Operations: Prof. Maruthi R Akela, UTA, USA

Maruthi Akella is a professor in Aerospace Engineering and Engineering Mechanics at UT Austin where he holds the Cockrell Family Endowed Chair in Engineering. He is founding director for the Center for Autonomous Air Mobility and faculty lead coordinator for the controls, autonomy, and robotics area at UT Austin. His research encompasses coordinated systems, learning, adaptation, and vision-based sensing. The major impacts of Dr. Akella's work have been recognized through the AIAA Mechanics and Control of Flight Award, the AAS Dirk Brouwer Award, the IEEE-CSS Award for Excellence in Aerospace Control, and the Judith Resnik Space Award from the IEEE Aerospace and Electronic Systems Society. Dr. Akella is Editor-in-Chief for the Journal of the Astronautical Sciences and a Fellow of the AIAA, IEEE, and AAS.

Abstract: Scalability, optimality, and decentralized tasking can be viewed as critical enablers for In-Space operations involving repair, refueling, and refurbishment of orbiting assets. The complex interplay between onboard autonomy and decision support systems introduces new vulnerabilities that are extremely hard to predict with most existing tasking and planning tools. In this seminar, we review some recent advances in learning theory, trust-informed negotiations, and sub-modularity metrics for non-myopic planning. The "trust-based" learning and optimal tasking framework is realized through certain new learning mechanisms with computational and convergence guarantees. These technical foundations will be highlighted through representative applications such as satellite constellation control and coordination among fractionated space assets.

2. **Simulation Superpowers for SPace,** Aerospace & defenCE (SPACE): Mr. Shashank Narayan, CTO, AGI

Mr. Shashank Narayan is the Chief Technology Officer of Ansys Government Initiatives (AGI), overseeing all aspects of innovative Product Development and Product Management in that capacity. He is a senior technology and business leader and has over 30 years of experience in leading and managing commercial software development teams. As the CTO, he is responsible for the product strategy and product roadmap for the Digital Mission Engineering business unit of Ansys, aligned with the overall Ansys corporate strategy. He is also the executive sponsor for the Asia Pacific A&D go-to-market. Shashank and the Ansys Digital Mission Engineering product team have delivered transformational capability via their products such as Systems Tool Kit (STK) and Orbit Determination Toolkit (ODTK) to aid Space and National Security customers in their digital transformation journey.

## July 22, 2024: 15.50-16.10 Hrs: Convention Hall

## Semiconductor Plenary: Session Chair: Prof. Debatosh Guha, IEEE Fellow, IEEE AP-S MGA Chair

**Making India a Semiconductor Product Nation:** Dr. Satya Gupta, President, VLSI Soceity of India

Dr. Satya Gupta is a techno-visionary with a wealth of experience & expertise and has been part of the worldwide Semiconductor and Electronics industry for more than 40 years. After a 12 year long corporate career at Intel, he has co-founded 4 successful start-ups, Intel Micro- Electronics, Open-Silicon, Concept-2-Silicon and SenZopt in Electronics

& Semiconductor Areas. His Vision and Mission is “Make India an Electronics & Semiconductor Product Nation” and take VLSI Design education and Semiconductor product start-ups in every part of the country. He was the Founding member of India Semiconductor Association (IESA) in 2005 and was IESA Chairman for years 2012-13 and 2020-2021. Most recently, he was Co-Founder and CEO of EPIC Foundation, a non-profit organization for enabling state-of-art Electronics products from India. He is also currently serving as President of VLSI Society of India which is the largest platform dedicated to build Semiconductor Research and Industry-Academia connects in India. He works closely with government of India and several states towards India Semiconductor Mission and closely associated with Semicon India, DLI, C2S, DIR-V programs and newly started B. Tech Program for Electronics and VLSI Design. He is associated with many of the R&D and start-up efforts in Electronics and Semiconductors through CII, Crest BITS Pilani, KIIT-Incubator, Electropreneur Park Delhi & Bhubneshwar, iHUB Divyasampark Roorkee, He is currently serving as Visting Professor at IIT Roorkee, IIT Gandhinagar and Gati-Shakti Vishwavidyalaya.

## July 22, 2024: 17.30-19.00 Hrs: Convention Hall

## Space Plenary-3: Session Chair: Dr. Mark E Davis, 2022-2023 IEEE AESS President

### 1. Convergence of Technologies through Space-A Personal Note: Dr. M Annadurai, DS & Former Director, URSC, ISRO

Padmashri Awardee Dr Mylswamy Annadurai is a Distinguished space scientist of International repute. Holding PhD in engineering, he has served in Indian Space Research Organisation(ISRO) for 36 years. He has contributed for more than 60 satellites made in India. During his tenure (2015-2018) as Director, ISRO satellite centre, Dr Annadurai led more than 3000 strong scientists and engineers to build and launch 30 state of the art satellites. Prior to that he led two of the most significant achievements of ISRO namely Chandryaan-1 and Mangalyaan (Moon and Mars missions), as Project Director and Programme Director for the respective missions. He was also instrumental in operationalizing NAVIC constellation, Indian Regional Navigation System and redefining Aditay L1 mission. Dr. Annadurai had led many international forums and committees on Space science and technology Viz, Chairman, working group of the whole in United Nations Committee for Peaceful use of Outer Space, Co-chair Asia-Pacific Space Forum, Co-chair Indo German Joint working team for Space co-operation, Co-Chair Indo-French Joint working team for Space co-operation. He has travelled to many countries. Dr Annadurai was Vice President, Tamilnadu State Council for Science & Technology and Chairman, National Design and Research forum between 2019 & 2022. He is the Chairman for Aerospace committee in Southern India Chamber of Commerce & Industries, Executive Vice President, Senior Citizens Support Forum, Chennai. Dr Annadurai is in the board of Directors, SS Innovations International inc, Florida, SS Innovations pvt Ltd(R&D HQ -India), Gurugram, Director, Moon Land Technologies Pvt Ltd Chennai and the member of Tamilnadu State Audit Advisory Board. He is also honorary advisor for few startups and charitable trusts namely, Gencrest Pvt Ltd Mumbai, Thathya Earth Pvt Ltd Mumbai, Orange Foundation, Chennai, Edutech4Space, Dubai , Daksha Unmanned Systems, Chennai, Space Zone India , Chennai, and trustee member American India Foundation- India Trust, New Delhi. Dr.Annadurai has been bestowed with the Padma Shree award in 2016 for Science and Technology from Govt.of India, Rajyotsava Prashasti award for Science in 2008 from Govt. of Karnataka, a Special award from Govt of Tamilnadu in 2023, Engineering Excellence award 2016 from IEI-IEEE(USA) along with more than 100 national and international awards. Annadurai has authored more than 150 research papers and attended more than 250

national and international conferences. He has also written 7 award winning books and his achievements have been highlighted in school science text books of Tamilnadu since 2009. Post superannuation, Dr.Annadurai is mentoring and guiding engineering science students and young entrepreneurs in the innovative projects of social relevance. Further Details Refer Web Site : https://www.mylswamyannadurai.in/

2. **Probing the Universe using radio waves :** Current and future trends in Radio Astronomy from ground and space : Prof. Yashwant Gupta, Director, NCRA

Yashwant Gupta obtained his M.S. and Ph.D. in Radio Astronomy from the University of California, San Diego in 1990, after completing his Bachelor's degree in Electrical Engineering from IIT-Kanpur in 1985. Since 1991, he has been at the National Centre for Radio Astrophysics (NCRA-TIFR, Pune) of the Tata Institute of Fundamental Research, where he currently holds the position of Distinguished Professor. From 2010 to 2022, he functioned as Dean of the GMRT Observatory -- a world class instrument built and operated by NCRA-TIFR, located about 80 km from Pune. In March 2018, he took over as the Centre Director of NCRA-TIFR. His main research areas include pulsars, the interstellar medium and radio astronomy instrumentation. He is a Shanti Swarup Bhatnagar awardee, and has been elected a member of all the 3 Science Academies of India as well as of the Indian National Academy of Engineering, and also a Senior Member of the IEEE.

Abstract: The demonstration of how to transmit and receive radio waves, first done by Sir J.C. Bose in 1894, led to the opening up of a new window to the Universe. Radio astronomy involves tight interaction with many fields of engineering, especially those relevant to SPACE-2024! In this talk, we will trace the fascinating story of radio astronomy and the engineering behind it, starting with single dish antennas and going on to the large arrays of antennas spread out over large distances (upto inter-continental scales) that are used now-a-days, and also talking about the cutting edge technologies used in this field, covering RF, optical fibre, digital signal and image processing, big data and AI/ML techniques. We will also take a look at the futuristic prospects for radio astronomy, covering next generation ground based facilties as well as those planned to be in space and on the other side of the Moon.

## 3. Modulation distortion EVM and NPR measurements using Network Analyzers, Ayyagari Parvateesam, Keysight

Ayyagari Parvateesam is an expert at Keysight Technologies, specializing in RF and microwave measurements. With a background in engineering and extensive experience in test and measurement solutions, he has contributed significantly to advancing measurement capabilities for high-frequency applications, including aerospace and defence sectors.

## 4. Sustainable Space: Prof. Saifur Rahman, 2023 IEEE President & CEO

Professor Saifur Rahman is the founding director of the Advanced Research Institute at Virginia Tech, USA, where he is the Joseph R. Loring Professor of Electrical and Computer Engineering. He also directs the Center for Energy and the Global Environment at the university. He is a Life Fellow of IEEE and an IEEE Millennium Medal winner. He was the president of the IEEE Power and Energy Society (PES) for 2018 and 2019. He is the founding editor-in-chief of the IEEE Electrification Magazine and the IEEE Transactions on Sustainable Energy. He has published more than 160 journal papers and has made more than 600 conference and invited presentations. His h-index is 64 with over 20,000 citations. In 2006, he served on the IEEE Board of Directors as the Vice President for Publication Services and Products. He is a distinguished lecturer for IEEE PES and has lectured on renewable energy, energy efficiency, smart grid, energy internet, blockchain, and IoT sensor integration in more than 30 countries. He is the founder of BEM Controls, LLC, a Virginia (USA)-based software company providing building energy management solutions. He served as the chair of the US National Science Foundation Advisory Committee for International Science and Engineering from 2010 to 2013. His research at Virginia Tech has been funded by Duke Energy, Tokyo Electric Power Company, the US National Science Foundation, the US Department of Defense, the US Department of Energy, and the State of Virginia (USA). He has a Ph.D. in electrical engineering from Virginia Tech.

## July 23, 2024: 8.30-10.00 Hrs: Convention Hall

## Space Plenary-3: Session Chair: Dr. S Christopher, 2015-2018 Secretary, DD(R&D)

1. **Ultra Wide Band Surveillance Radar:** Dr. Mark E Davis, 2022-2023 IEEE AESS President

Dr Mark E Davis has over 50 years' experience in Radar technology and systems development. He has held senior management positions in the U.S. Defense Advanced Research Projects Agency (DARPA), Air Force Research Laboratory, and General Electric Aerospace. At DARPA, he was the program manager on both the foliage penetration (FOPEN) radar advanced development program and the GeoSAR foliage penetration mapping radar. His education includes a PhD in Physics from The Ohio State University, and Bachelor and Master's Degrees in Electrical Engineering from Syracuse University. He is a Life Fellow of the IEEE and Past President of IEEE Aerospace Electronics Systems Society (AESS). Mark received the 2018 IEEE Dennis J. Pickard Medal for Radar Technologies and Applications.

Abstract: Ultra Wide Band Surveillance Radar is an emerging technology for detecting and characterizing targets and cultural features for military and geosciences applications. It is essential to have fine range and cross-range resolution to characterize objects near and under severe clutter. This Lecture is divided into four parts.

- The Early History of Battlefield Surveillance Radar: Battlefield surveillance from manned and unmanned aircraft, along with early experiments in fixed and moving target detection and foliage penetration are covered.
- UWB Synthetic Aperture Radar (SAR): A brief description of key UWBsurveillance SAR systems will be provided, along with illustrations of the SAR image and fixed object detection capability. UWB Ground Moving
- Target Indication: This section will discuss an approach for increasing the bandwidth and maintaining geolocation accuracy with Along Track Interferometry. New research in Multi-mode Ultra-Wideband Radar,
- The last section of the lecture will illustrate new technologies that have promise for future multimode operation: simultaneous SAR and GMTI in a multichannel radar.

## 2. Aerospace Program: Our Signature in the sky and beyond: Dr. B K Das, DS & DG (ECS)

Dr B K Das, Distinguished Scientist has been appointed as Director General (Electronics & Communication System) on 29th April 2022. Prior to this, he was Director, ITR followed by Director, IRDE and Director, DEAL. He was an integral part of Indian Missile Program for 33 years and worked relentlessly towards Test and Evaluation of various state of the art Missiles and other air borne Weapon Systems. He was instrumental in flight evaluation of all missiles under IGMDP, Agni and its variants, BMD, BrahMos, LRSAM, MRSAM, air to air missiles and all other class of weapon systems. He has led the team towards planning and establishment of new test ranges beyond ITR. He has spearheaded the Test Range, which is the Best and Busiest Range in the world today. He has transformed the Test Range Technology for the country to have entire capability of indigenous Test Systems with international capabilities. Indigenous development of Electro Optical Tracking System, Tracking Radar System, Long Range Telemetry System, Phased Array & drone-based Telemetry system, Dual Band Telemetry to beat the plasma, Telecommand System and number of multitarget tracking Systems along with various processes and system software creating automated system for mission management has been achieved under his dynamic leadership. In IRDE, under his dynamic leadership a number of state-of-the-art products could be realized like Electro-optic Mast, Light weight Electro Optic Payload for helicopters, Compact Optronic Payload for UAVs and Aircrafts, Advanced Gunner Main Sight and Indigenous Commander Panoramic Sight, Time Gated Raman Spectroscopy, LIDARs, Hyperspectral Systems and many more critical EO systems. During this period, he has created various infrastructure and state of the art Test Facilities for Electro Optical Systems which will reduce the development cycle of such systems. He has led various projects of national importance in both the Labs and defined the vision for both of these laboratories for next 20 years. He has also spearheaded critical communication programmes like Software Defined Radio, CTCS, Datalink etc. As Director General of Electronics and Communication System, he has led significant programmes of national importance like Active Electronically Scanned Array Radar (Uttam) and its variants for fighter aircrafts enabling its production and next gen technologies in fighter radars, land based and air borne Electronic Warfare Systems, Long Range Radars, first antidrone system leading to production in a record time of 24 months, Dornier Midlife upgrade system etc. He has taken some game changing initiatives to have a faster realisation of systems and building the defence ecosystem with Industries, Academia, Startups, MSME and Incubation Centres. He has brought defence challenges across these entities towards realising a techno rich organisation. He received numerous awards including Lakshmipat Singhania-IIM, NRDC, Young Engineer National Award and Medallion by Indian National Academy of Engineering (INAE), Biju Ratna Award, Agni Award of Excellence in Self Reliance from DRDO, Scientist of The Year Award for the year 2003, Award for DRDO path breaking research for Air Defence Systems for the year 2006-07, Award for DRDO Path breaking research for the year 2007-08, etc.

3. **AI/ML Techniques used in Next Generation Combat Aircraft:** Shri. Jitendra J Jadhav, DS & Director, ADA

Shri Jitendra J Jadhav: did his Electronics Engineering from University of Pune (1987) and MS (By Research) from Defence Institute of Advance Technology (DIAT), Pune. He has an experience of more than 33 years in Design and Development of Fighter and Civil

Transport aircrafts, Flying Trainer's and its associated electronics & control systems. He was instrumental in steering the Initial Operational Clearance (IOC) of Tejas-LCA and induction into Indian Air Force. He also steered the weaponisation of Tejas - LCA as a lethal platform and developed key technologies like Mission and Display Computer, Digital Weapon Management System, Flight Dynamics Simulator etc.. This has substantially yielded FE savings and helped in development of aerospace industrial base in the country. Currently, as Director & Programme Director (Combat Aircraft), ADA, he is steering major National Programmes like LCA AF MK1A, LCA AF MK2, Advanced Medium Combat Aircraft (AMCA) and Twin Engine Deck Based Fighter (TEDBF) for IAF and Navy. He is instrumental in induction of LCA Tejas, Twin seater Trainer into the Indian Air Force. Before joining as Director, ADA, he has served as Director of CSIR-National Aerospace Laboratories (CSIR-NAL), Bangalore (2016-2022) and has steered the revival of decade stranded SARAS project. Type certification of Hansa-NG (2 Seater flying trainer), High Altitude solar powered Platform (HAP) as Pseudo satellite and Regional Transport Aircraft to promote Regional connectivity. During his tenure as Director-CSIR-NAL, he has successfully developed and commercialized path braking aerospace technologies towards self reliance like Carbon Fibre, Shape Memory Alloys, Stealth Technologies, Eco Friendly coatings, Smart Materials etc. During his tenure, the CSIR-NAL has shown phenomenal financial growth with external cumulative earnings increased to more than 500 cr through technology licensing, collaborations and National/International projects. He is Fellow of Indian National Academy of Engineering (INAE) and Fellow of Royal Aeronautical Society (UK) He is recipient of many prestigious awards viz., DRDO Scientist of the year, DRDO Agni award for Self Reliance, DRDO Performance Excellence award, Swatantrya Veer Savarkar Puraskar, CSIR-Technology Innovation Award and CSIR-Diamond Jubilee Award He has published many scientific/technology papers in National and International journals.

4. **Boeing & India:** Today and Beyond, Nikhil Joshi, MD, Boeing Defence India,

Nikhil Joshi serves as managing director for Boeing Defence India (BDI), overseeing a team across seven locations nationwide. He is responsible for present and future programs for BDI in close partnership with Boeing Defense, Space & Security (BDS) and Boeing Global Services (BGS) – aimed at enhancing the mission readiness and modernization of India's defence forces. Before joining Boeing, Joshi served as the country manager for Eaton Aerospace where he established local manufacturing capabilities and grew the business in the domestic market. Joshi brings over 25 years of experience in the aerospace and defense industry, with over two decades of service in the Indian Navy, having served in key operational and staff appointments including command of afloat units and aviation squadrons, and two tenures with the naval aviation headquarters. With more than 4,000 hours of flying experience on various maritime reconnaissance aircraft, he has commanded both frontline ships and air squadrons. Joshi serves as a member of the Confederation of Indian Industry (CII) National Committee on Aerospace. Joshi is an alumnus of the National Defence Academy, Khadakvasla. He holds a bachelor's degree in science from Jawaharlal University, New Delhi, and has completed a postgraduate program in business management specializing in strategy and marketing, from the Indian School of Business, Hyderabad.

## 5. **Air Vice Marshal Premkumar Krishnaswamy** VM VSM

**Air Vice Marshal Premkumar Krishnaswamy** VM VSM was commissioned on June 15, 1991 in the Fighter Stream of the Indian Air Force (IAF). He has flown over 4300 hours on a variety of Fighter and Trainer aircraft.

He is a qualified Flying Instructor, Instrument Rating Instructor and Examiner, Alumni of the Prestigious National Defence College, College of Air Warfare and Defence Services Staff College (DSSC). He has held various important Command and Staff appointments. He commanded a Fighter Sqn in the South Western sector and three important Air Force Stations in the Western sector. He was the founder member of the famed IAF Formation Aerobatic Team 'Suryakirans'. His staff tenures include an important appointment in one of the operational Command during the epoch of Balakot Strike and as Directing Staff in the prestigious DSSC, Wellington. As the First Defence Adviser to the Embassy of India,Abu Dhabi, he set up the defence wing to improve the military relations between India and UAE. During this stint he was selected to coordinate the evacuation operations of Indian Nationals from Sana'a, Yemen where he spearheaded the operations to successfully evacuate 4672 people from 41 different countries.

He was selected to establish the newly sanctioned Defence Space Agency and tenanted an important appointment. Recently he has been appointed as a first Commandant of Weapon Systems School, a newly raised establishment of Indian Air Force.

He was awarded two Presidential Medals Vayu Sena Medal in 2012 and VishishtSeva Medal in 2016.

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(SPace, Aerospace and defenCE Conference)

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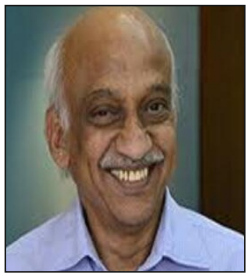

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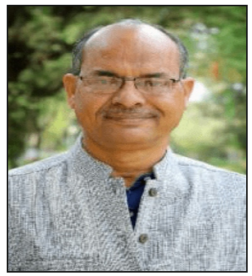

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Director, IIM Mumbai

**Dr. Manoj Choudhary**
VC, Gati Shakti Vishwavidyalaya

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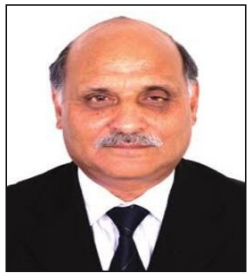

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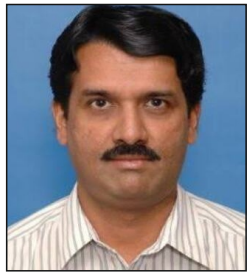
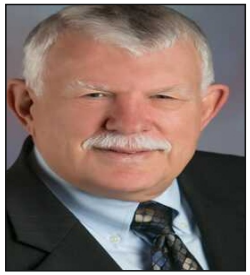


**Dr. V V Srinivasan**
OS & Former Director, ISTRAC, ISRO



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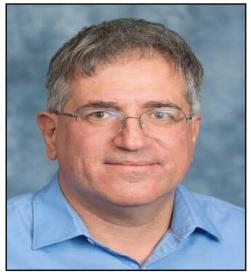

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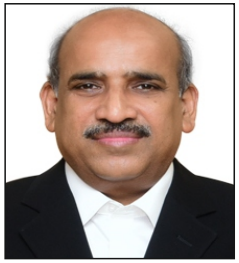

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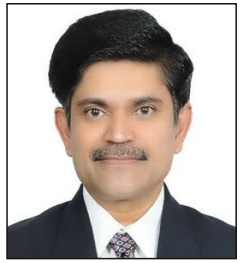

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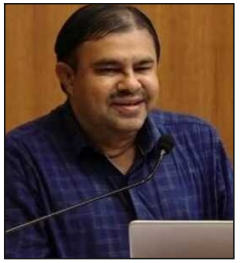

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# Monday, July 22, 2024

| Time | Convention Centre | Amaryllis | Petunia | Poinsettia 1 | Poinsettia 2 | Heliconia 1 | Heliconia 2 | Tulip | Hibiscus 1 | Hibiscus 2 |
|---|---|---|---|---|---|---|---|---|---|---|
| 09:00-10:45 | *Inaugural Session* | | | | | | | | | |
| 10:45-11:30 | *Exhibit Inauguration and Tea/Coffee Break* | | | | | | | | | |
| 11:30-13:00 | P1: *Space Plenary-I* | | | | | | | | | |
| 13:00-14:00 | *Lunch Break & Exhibit Visit* | | | | | | | | | |
| 14:00-15:00 | P2: *Space Pleanary-II* | OS1: *Radar Technologies-I* | OS2: *SATCOM Technologies* | OS3: *Cyber Security/Computing/IT/SE* | OS4: *Power/Energy/Power Electronics* | OS5: *Special Session on AI/ML Technologies for SPACE-I* | OS6: *Data/Image/Signal Processing-I* | OS7: *Embedded System/Semiconductor/ VLSI Technologies* | OS8: *Mission Planning/Control & Guidance-I* | OS9: *SPACE Antennas-I* |
| 15:00-16:00 | PD1: *Panel Discussion on "Large Scale Digital Engineering Initiatives for Aerospace & Defence: Opportunities, Challenges and Benefits"* | | | | | | | | | |
| 16:00-16:30 | TB2: *Tea/Coffee Break & Exhibit Visit* | | | | | | | | | |

# Tuesday, July 23, 2024

| Time | Convention Centre | Amaryllis | Petunia | Poinsettia 1 | Poinsettia 2 | Heliconia 1 | Heliconia 2 | Tulip | Hibiscus 1 | Hibiscus 2 |
|---|---|---|---|---|---|---|---|---|---|---|
| 08:30-10:30 | P4: *Aerospace & Defence Plenary* | | | | | | | | | |
| 10:30-11:00 | TB3: *Tea/Coffee Break & Exhibit Visit* | | | | | | | | | |
| 11:00-12:00 | PD3: *Panel Discussion on AI/ML Driving the Future of SPACE* | OS19: *Special Session on Quantum Technologies* | OS20: *Image/Data/Signal Processing-II* | OS21: *RF Switches/RFID* | OS22: *Checkout Systems* | OS23: *Special Session on AI/ML Technologies for SPACE-III* | OS24: *Mechanism & Robotics* | OS25: *Microwave Devices* | OS26: *RIS/FSS based Technologies* | OS27: *Navigation Technologies-I* |
| 12:00-13:00 | PD4: *Panel Discussion on Futuristics Technologies for Space* | | | | | | | | | |
| 13:00-14:00 | *Lunch & Exhibit Visit* | | | | | | | | | |
| 14:00-15:00 | PD5: *Role of Standards in SPACE* | OS28: *Reserved Session* | OS29: *Special Session on Human in Space/Simulators* | OS30: *THz Technologies* | OS31: *System Engineering* | OS32: *Special Session on AI/ML Technologies for SPACE-IV* | OS33: *Mission Planning/Control & Guidance-III* | OS34: *SIW/Vivaldi/Spiral Antennas* | OS35: *Filters & Passive Microwave Devices* | OS36: *System Reliability & QA* |
| 15:00-16:00 | PD6: *Opportunities for Industries in Space, Aerospace and Defence (SPACE) Ecosystem* | | | | | | | | | |
| 16:00-16:30 | TB4: *Tea/Coffee Break & Exhibit Visit* | | | | | | | | | |

| Time | Convention Centre | Amaryllis | Petunia | Poinsettia 1 | Poinsettia 2 | Heliconia 1 | Heliconia 2 | Tulip | Hibiscus 1 | Hibiscus 2 |
|---|---|---|---|---|---|---|---|---|---|---|
| 16:30-17:30 | PD7: *Collaboration and Funding Opportunities for Academia in SPACE Ecosystems* | 3MT: *Three Minute Thesis* | OS37: *Ground Support Technologies* | OS38: *Radar Technologies-II* | OS39: *Communication Technologies-II* | OS40: *Special Session on AI/ML Technologies for SPACE-V* | OS41: *Technology Compendium & TWTs Related Technologies* | OS42: *Technologies for CAN/CubeSat* | | OS43: *SPACE-OLS* |
| 17:30-18:30 | PD8: *Panel Discussion on IEEE's Role in Advancing Technology for Policy Making towards AtmaNirbhar & Viksit Bharat* | | | | | | | | | |
| 18:30-19:30 | *Awards Function & Valedictory*<br>Overall Best Paper Awards and Session Best Paper Awards | | | | | | | | | |
| 19:30-21:00 | *Gala Dinner* | | | | | | | | | |


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Panel Discussion on
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PANELISTS
MODERATOR
Dr. K Rajalakshmi Menon
DS & Director, CABS
Dr AVPS Prasad
Director, CEMILAC
Dr. Ranjana N
Director, DSTA
Prof. Puneet Singla
The Pennsylvania State University, USA
Dr. Aniruddha Mukhopadhyay
Lead Chief Technologist
Ansys
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PANELISTS
Dr. Tapan Mishra
Founder SISIR Radar
Rohan Ganapathy
CEO & CTO Bellatrix
Arpan Sahoo
CEO - KaleidEO
Srinanth Ravichandran
Co-Founder of AgniKul Cosmos
Sunil Indurti
Director - Azista
MODERATOR
Shri. Rajeev Jyoti
DS & Director -Technical,
IN-SPACe
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Panel Discussion on
AI/ML Driving the Future of SPACE
PANELISTS
MODERATOR
Dr. Abhay A Pashilkar
Director, NAL
Prof. Manoj Choudhary
VC, Gati Shakti Vishwavidyalaya
Mr. Adishesha CS
Director Technology, Collins Aerospace
Dr. Vincent Socci
Director - Product Cost, Blue Origin
Dr. Seema Chopra
ED& Sr.TF, Boeing India
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Panel Discussion on
Futuristics Technologies for Space
PANELISTS
MODERATOR
Anupam Sharma
Director, DSP
Shri D K Singh
DS & Director, HSFC
Shri R V Nadagouda
Deputy Director ICA, URSC
Shri. Pankaj D Killedar
Director, MCF
Shri. Puneet Kumar Mishra
Head, Satellite Antenna
Characterization, URSC
July 23, 2024, 12:00 PM - 1:00 PM
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PANELISTS
MODERATOR
Mr Ravindra Beniwal
DD, TED, BIS
Dr. Vinod Kumar
President, SEBU, Centum
Mr. Tarun Gupta
Chief Business Manager,
Aerospace, Defence & Govt BU,
NI-India
Mr. Parag Jyoti Garg
AD, IN-SPACe
Rep from L&T Defence
Ms. Pamela Kumar
Ex-DG TSDSI & BoG, IEEE SA
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Opportunities for Industries in Space,
Aerospace and Defence (SPACE) Ecosystem
PANELISTS
MODERATOR
Mr. Ashish Rajvanshi
CEO, Adani Aerospace & Defence
Mr. K. H. Ganapathy Krishnan
GM(MCSRDC), HAL
Dr. Subba Rao Pavuluri
CMD, Ananth Technologies Ltd
Mr. B.M. Chandrakanth
Sr. GM-Marketing & Sales, AMPL
Mr. R Muralidharan
CTO, TASL
Dr V S Hegde
Former Scientific Secretary, ISRO & CMD Antrix
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Academia in SPACE Ecosystems
PANELISTS
MODERATOR
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Mr. Brijesh Soni
DD-IN-SPACe
Prof. A R Harish
IIT-K
Mr. Vivek Raghav
DIITM, DRDO HQ
Dr. M B Mahajan
DD, ASA, SAC, ISRO
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Panel Discussion on IEEE's Role in Advancing Technology for Policy Making towards AtmaNirbhar & Viksit Bharat
PANELISTS
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& Chairman ISRO
Dr. G Satheesh Reddy
2018-2022 Secretary, DDR&D
& Chairman, DRDO
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Director NIAS
2008-2015 Secretary, MoES
Prof. Saifur Rahman
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July 23, 2024, 5:30 PM - 6:30 PM
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# OS1 (Radar Technologies-I) - Session Time 14:00 -16:00 hrs

| Location | Amaryllis | Chaired by | P Radhakrishna (LRDE, India) |
|---|---|---|---|

14:00-14:15 : **Analysis of Bowtie Antenna for GPR Applications Using Method of Moments**
Ananya Dey (IIT Kharagpur & Institute of Radio Physics and Electronics, University of Calcutta, India); Amitabha Bhattacharya (IIT Kharagpur, India)

14:15-14:30 : **X-Band Aperture Coupled Slotted Waveguide Array for Side Looking Airborne Radar**
Glorious Raj (CABS Defence Research Development Organization, India); Nitin Kumar (Defence Research Development Organization, India); Ramkumar Raghu (Indian Institute of Science, India); Rajesh (Center of Airborne Systems, DRDO, India)

14:30-14:45: **Drone Based Dynamic Radar Cross-Section (RCS) Measurement Technology**
Anil Kumar Chepala (Defence Research and Development Organization, India); Srikanth Kota (NSTL, India); Sumanth Polimera (NSTL, India)

14:45-15:00 : **Experimental Ground Penetrating Radar Using Vector Network Analyzer**
Aavani Prasanth (Government College of Engineering Kannur, India); Abhinav P (Government College of Engineering Kannur, India); Anagh Ramachandran (Government College of Engineering Kannur, India); Anjana Kanakaraj (Government College of Engineering Kannur, India); Sajith K. (Government College of Engineering Kannur, India); Ajith K. K. (Government College of Engineering Kannur, India)

15:00-15:15 : **Cost-Effective Solutions for Beamforming in Miniaturized S-Band Radar Applications**
Amogh G (RV College of Engineering, India); Bhuvan Bharadwaj (RVCE, India); Dheeraj G (R V College of Engineering, India); Koyram Sathyanarayana Shushrutha (RVCE, India)

15:15-15:30 : **Centralized Multi Sensor Data Fusion Scheme for Airborne Radar and IFF**
Abhishek Kumar (DRDO, India); A Muthukumar (CABS, India); R Rajesh (CABS, India)

# OS2 (SATCOM Technologies) - Session Time 14:00 -16:00 hrs

| Location | Petunia | Chaired by | M Neelavathi (URSC, India) |
|---|---|---|---|

14:00 - 14:15 : **Vehicle Motion Emulation for SOTM Test Facility**
Ushma Vineet Dad (Space Applications Centre, ISRO, India); Siddhant Jain (ISRO, India); Kapil Sharma (Space Applications Centre, India); Sudhir Agarwal (Space Applications Centre, India)

14:15-14:30 : **A Compact E-Plane Sectoral Waveguide Power Combiner for Ku Band SATCOM Applications**
Manoj Kumar (Indian Institute of Technology Roorkee, India); Gowrish Basavarajappa (Indian Institute of Technology Roorkee, India)

14:30-14:45 : **SATCOM Based Learning Management System**
Dhruvit Chaniyara (Indian Space Research Organisation, India); Rahul Sharma (Indian Space Research Organisation, India)

14:45-15:00 : **Multi Gigabit Digital Modulator for Satellite Implemented Based on JESD204B Protocol**
Priyanka Das (Indian Space Research Organization, India); Yogesh Kr (URSC Bangalore, India); Ramalakshmi N (ISRO, India)

15:00-15:15 : **Leveraging mmWave Channel Coding for Enhanced Reliability in 6G High-Throughput Satellite Communications**
Ambar Bajpai (GITAM University, Bengaluru & IEEE Bangalore Section, India); Nagarjuna Telagam (GITAM University, India)

15:15-15:30 : **Performance Analysis of High Mobility Spatially Correlated MIMO-OTSM Systems for Aerospace and Defence Networks**
Sapta Girish Babu Neelam (Indian Institute of Technology Bhubaneswar & Bharat Electronics Limited, India)

15:30-15:45 : **A High Frequency Millimeter Wave Circular Patch Antenna for Radar Applications and Satellite Communications**
Manish Varun Yadav (Manipal Institute of Technology, Manipal Academy of Higher Education, Manipal, Karnataka, India); Abhi Chaurasia (Manipal Institute of Technology, Manipal Academy of Higher Education, Manipal, India); Salla Sai Charith (Manipal Institute of Technology, Manipal Academy of Higher Education, Manipal, India); Sudheendra Prabhu K (Manipal Institute of Technology, Manipal Academy of Higher Education, Manipal, India); Tanweer Ali (Manipal Institute of Technology, Manipal Academy of Higher Education, India); Swati Varun Yadav (Manipal Institute of Technology, Manipal Academy of Higher Education, Manipal, India)

# OS3 (Cyber Security/Computing/IT/SE) - Session Time 14:00 -16:00 hrs

| Location | Poinsettia 1 | Chaired by | Rajiv Chetwani (ISRO, India) |
|---|---|---|---|

14:00-14:30 : **Invited Talk : Cybersecurity issues in strategic sectors of defence and space**
Shri. Rajiv Chetwani, Director, DISM, ISRO HQ

14:30-14:45 : **Development of a Critical System Using a Domain Specific Language**
Ajita Shrivastava (Nuclear Power Corporation of India Limited, India); Arka Pratap Mitra (Nuclear Power Corporation of India Limited, India); Vinita Dungdung (Nuclear Power Corporation of India Limited, India); Deep Singh (Nuclear Power Corporation of India Limited, India)

14:45-15:00 : **Senspy: An Integrated Network Monitoring and Anomaly Detection System Using Machine Learning**
Bandaru Jnyanadeep (R. V. College of Engineering, India); Nikunj Mittal (RVCE, India); Srivishnu P N (RVCE, India); Varshith Y (RVCE, India); Mohana Mohana (RV College of Engineering, India); Minal Moharir (R V College of Engineering, India); A. R. Ashok Kumar (Rashtreeya Vidyalaya College of Engineering, India)

15:00-15:15 : **Clustering of Application Behaviors in Windows Environments**
Dyutisri Kolli (Defence Institute of Advanced Technology, India); Deepti Vidyarthi (Defence Institute of Advanced Technology, India)

15:15-15:30: **CNN Based Haze Removal for Aerospace and UAV Applications**
Padmadarsan S (APJ Abdul Kalam Technological University, India); Karunnya Biju (College of Engineering Trivandrum, India)

15:30-15:45 : **Transforming Wildlife Conservation With AI Integrated Darting Drones**
Karthik B (Dayananda Sagar University & Mysuru Zoo, India); Yogesh V (Dayananda Sagar University, India); Tarita Shetty (Dayananda Sagar University, India); Sripad Kulkarni (Dayananda Sagar University, India); J L Srinivas (Mysuru Zoo, India); Prashantha Kumar (Dayananda Sagar University, India)

# OS4 (Power/Energy/Power Electronics) - Session Time 14:00 -16:00 hrs

| Location | Poinsettia 2 | Chaired by | Srinivasan M S (URSC, India) |
|---|---|---|---|

14:00-14:30 : **Invited Talk : Estimation of Grid Harmonics in the Presence of Renewable Energy Sources**
Prof. S N Singh, Director,IIITM Gwalior

14:30-14:45 : **Design Evaluation of Pyro Initiator Circuits for Unmanned and Manned Spacecrafts Using Fault Tree Analysis**
Sagnik Dutta (Indian Space Research Organisation, India); Gaurav Yadav (Indian Space Research Organisation, India); Aditya Karan (Indian Space Research Organisation, India); Gowrishankara Ck (Indian Space Research Organisation, India); Geethaikrishnan C. (Indian Space Research Organisation, India); RV Nadagouda (Indian Space Research Organisation, India)

14:45-15:00 : **Radiation Hardening of Switched-Capacitor Based DC-DC Converter**
Sohini Ghosh (Indian Institute of Technology Kharagpur, India); Kali Pada Bhukta (Indian Institute of Technology Kharagpur, India); Pradip Mandal (Indian Institute of Technology Kharagpur, India);
Himanshu Patel (Indian Space Research Organisation (ISRO), India); Vishnukumar D Patel (Space Applications Centre, ISRO, Ahmedabad, India)

15:00-15:15 : **Enhancing Driving Capability of On-Chip Switched Capacitor Based Converter Using High Speed NRTI Switching Scheme**
Kali Pada Bhukta (Indian Institute of Technology Kharagpur, India)

15:15-15:30 : **Multilevel Converter for Sonar Power Amplifier and Its Power Control**
Panchalai V N (NPOL & NITT, India); Aswini Narayanan (Naval Physical and Oceanographic Laboratory, India); Layana Mary (NPOL, India); Akhila M Jayanthan (NPOL, India)

15:30-15:45 : **Review on Underwater Sonar Power Amplifier Technologies**
Panchalai V N (NPOL & NITT, India); Sateesh Kumar Kuncham (NIT, Tiruchirappalli, India); Kumaresan Natarajan (National Institute of Technology, Tiruchirappalli, India); Ramesh R (NPOL, India)

15:45-16-00 : **Design and Realization of Programmable Electronic Load for Aerospace Vehicle Testing**
Kamlesh Kumar (ASL HYDERABAD, DRDO, India)

## OS5 (Special Session on AI/ML Technologies for SPACE-I) - Session Time 14:00 -16:00 hrs

| Location | Heliconia 1 | Chaired by | Vincent Socci (LHP Software & IEEE BoD, USA) |
|---|---|---|---|

14:00-14:15 : **Aircraft Detection in Satellite Imagery Based on Deep Learning/AI Techniques and FPGA/SoC Based Hardware Implementation** - Dimple Garg (Indian Space Research Organization & Space Application Centre, India); Dhara Shah (Dhirubhai Ambani Institute of Information and Communication Technology, India); Vaishnavi Chintapalli (Space Applications Centre & ISRO, India); Sandip Paul (SAC, ISRO, India); Ashish B Mishra (Space Applications Centre, India)

14:15-14:30 : **Seismic Image Retrieval and Classification With Novel Slice Shuffling Data Augmentation**
Saliq Gowhar (National Institute of Technology Karnataka, India); Satyam Agrawal (National Institute of Technology Karnataka, India); M Shashank (NITK, India); Anand Kumar M (National Institute of Technology - Karnataka, India)

14:30-14-45 : **RS-A2M: Zero-Shot Prompt With Attention-Based Unsupervised Segmentation for Remote Sensing**
Dwijay Bane (Indian Institute of Technology - Delhi, India); Avantika Singh (Indian Institute of Technology - Delhi, India); Manan Suri (Indian Institute of Technology - Delhi, India)

14:45-15:00 : **Real-Time Fatigue Monitoring System in Diverse Driving Scenarios**
Thasnimol Valuthottiyil Shajahan (Indian Institute of Technology, Madras, Chennai, India); Babji Srinivasan (Indian Institute of Technology Madras, India); Rajagopalan Srinivasan (Indian Institute of Technology Madras, India)

15:00-15:15 : **SADDLE: Spacecraft Anomaly Detection Using Deep Learning**
Ankit Srivastava (Indian Institute of Space Science and Technology, India); Neeraj Badal (Space Applications Centre, ISRO, India); Manoj Bs (Indian Institute of Space Science and Technology, India)

15:15-15:30 : **A Novel Approach Using Degradation Representation for Remote Sensing Image Super-Resolution in Real- World Scenarios** - Divya Mishra (Ben Gurion University, Israel); Ofer Hadar (Ben Gurion University of the Negev, Israel)

15:30-15:45 : **Unsupervised Hyperspectral Image Segmentation: A Novel 3-Dimensional Clustering Methodology**
Kanav Avasthi (Nirma University, India); Manav Vakharia (Nirma University, India); Aaryan Chokshi (Nirma University, India); Anuja Nair (Nirma University, Ahmedabad, Gujarat, India); Tarjni Vyas (Nirma University, India); Shivani Desai (Institute of Technology Nirma University, India); Sudeep Tanwar (Nirma University & Institute of Technology, India)

15:45-16:00 : **Enhanced Detection of Maize Leaf Blight in Dynamic Field Conditions Using Modified YOLOv9**
Kaustubh Suresh Gharat (Sardar Patel Institute of Technology, India); Harshita Umesh Jogi (Sardar Patel Institute of Technology, India); Kaustubh Surendra Gode (Sardar Patel Institute of Technology, India); Kiran Talele (Sardar Patel Institute of Technology, India); Sujata Kulkarni (SPIT, India); Mahesh Kolekar (Indian Institute of Technology Patna, India)

# OS6 (Data/Image/Signal Processing-I) - Session Time , 14:00 - 16:00 hrs

| Location | Heliconia 2 | Chaired by | Yashwant Gupta (NCRA, TIFR, India) |
|---|---|---|---|

14:00-14:15 : **Spacecraft Payload Data Processing With In-Memory Concurrent Threads and Data Buffers**

Aravind Sunil (UR Rao Satellite Centre, Indian Space Research Organisation, India); Narayana Rao G S (UR Rao Satellite Centre, Indian Space Research Organisation, India); Amulya Sri Pulijala (National Remote Sensing Centre, Indian Space Research Organisation, India); Subbaraya Sastry C V R (UR Rao Satellite Centre, Indian Space Research Organisation, India, India)

14:15-14-30 : **Advancements in Launch Vehicle Acoustic Monitoring: A One-Third Octave Processing Algorithm**

Rekhanshi Varma (Vikram Sarabhai Space Center, Indian Space Research Organization (ISRO), India); Deepu Roy (Scientist, India); Vidya B (VSSC, India); Nandakishor MM (Vikram Sarabhai Space Center, Indian Space Research Organization (ISRO), India); Finitha C (VSSC, India)

14:30-14:45 : **WANI - A Text-To-Speech Model for Indian Languages and Beyond for Aerospace Applications**

Amresh Kumar (DRDO, India); Harshil Gupta (DRDO, India); TM Dhipu (Center of Airborne Systems, DRDO, India); Ramachandran Rajesh (DRDO, India)

14:45-15:00: **High SNR Camera Electronics for Ocean Imaging**

Pradeep Soni (Space Applications Centre, ISRO, Ahmedabad, India); Ashok Kumar (Space Application Centre & ISRO, India); Nilesh B Singal (Space Applicatons Center Ahmedabad, India); Deepak Jain (Space Applications Centre & ISRO, India); Ravi Kumar (SAC ISRO Ahmedabad & SAC ISRO, India); P Nandha (Space Applications Centre, ISRO, Ahmedabad, India); Vishnukumar D Patel (Space Applications Centre, ISRO, Ahmedabad, India)

15:00-15:15: **Predictive Model for Enhancing Water Quality Monitoring Leveraging Satellite Data**

Prakash P (National Institute of Technology Karnataka, Surathkal, India); Sowmya Kamath S. (National Institute of Technology Karnataka, India); Shrutilipi Bhattacharjee (National Institute of Technology Karnataka, India); U Pruthviraj (National Institute of Technology, India); K Gangadharan (National Institute of Technology, India)

15:15-15:30 : **Military Based Object Detection in Satellite Imagery by Optimising YOLOv8**

Swati Singh (Indian Institute of Science, India); Rathna G N (Indian Institute of Science, Bangalore, India)

15:30-15:45 : **Recent Advances in Urban Expansion Monitoring Through Deep Learning-Based Semantic Change Detection Techniques From Satellite Imagery**

Basavaraju K S (National Institute of Technology Karnataka, Surathkal & Siddaganga Institute of Technology, Tumakuru, India); Sravya N (National Institute of Technology, Karnataka, Surathkal, India); Vibha Damodara Kevala (National Institute of Technology Karnataka, Surathkal, India); Shyam Lal (National Institute of Technology Karnataka, Surathkal, India)

15:45-16:00 : **A Walkthrough to Airborne Acoustic Source's Hidden Patterns in Lower and Higher Dimensional Space**

Anuj Kumar Mishra (Academy of Scientific and Innovative Research & Central Scientific Instruments Organization, India); Ripul Ghosh (Central Scientific Instruments Organisation & Academy of Scientific and Innovative Research, India)

## OS7 (Embedded System/Semiconductor/VLSI Technologies) - Session Time , 14:00 - 16:00 hrs

| Location | Heliconia 2 | Chaired by | Krishna Paul (Intel Corporation, India) |
|---|---|---|---|

14:00-14:15 : **A Comparison of CMOS and Bi-CMOS Semiconductor Technology for Miniaturized PLL Chip Performance for High Frequency Synthesizers** - Pankaj Sandip Bhavsar (Space Applications Centre, Indian Space Research Organization & Indian Institute of Technology, Bombay, India); Harshita Tolani (Indian Space Research Organization, India); Jolly Dhar (Space Applications Centre, ISRO, India); Cvn Rao (Space Applications Centre (ISRO), India); Nilesh M. Desai (Space Applications Centre, ISRO, India)

14:15-14:30 : **Design and Realization of RFSoC FPGA Based Multi-Channel Data Acquisition & Digital Beam Former System**
Chinni Prabhunath G (None, India); Shahul Hameed V (Scientist, India)

14:30-14:45 : **Embedded Data Acquisition and Command Simulator for SAIS Receiver Ground Testing**
Gaurangi Sahay (Indian Space Research Organisation, India); Hemanth Reddy N (Indian Space Research Organisation, India); Yogesh Kr (URSC Bangalore, India); Ramalakshmi N (ISRO, India)

14:45-15:00 : **Morphological Galaxy Classification Using Convolutional Neural Networks on FPGA**
Rahul Barnwal (IIIT Kottayam, India); Kala S (Indian Institute of Information Technology Kottayam, India)

15:00-15:15 : **TinyML-On-The-Fly: Real-Time Low-Power and Low-Cost MCU-Embedded On-Device Computer Vision for Aerial Image Classification**
Riya Samanta (Indian Institute of Technology, Kharagpur, India); Bidyut Saha (Indian Institute of Technology Kharagpur, India); Soumya Ghosh (Indian Institute of Technology Kharagpur, India)

15:15-15:30 : **Effects of Package Parameter on Millimeter Wave (Ka-Band) Exotic IMPATT Oscillators**
Debraj Modak (Abacus Institute of Engineering and Management & JIS GROUP, India); Shajith Nair (Adamas University, India); Abhijit Kundu (Chaibasa Engineering College, India); Indranath Sarkar (JIS College of Engineering, India); Karabi Ganguly (JIS College of Engineering, India); Moumita Mukherjee (Prrofessor, India)

15:30-15-45 : **FPGA Based Variable Scan Rate Generic Stepper Motor Drive Algorithm for mm-Wave Sounder Payloads**
Rahulkumar M Dhingani (Space Applications Centre, ISRO, India); Madhav Das (Space Applications Centre, ISRO, Ahmedabad, India); Himanshu Patel (Indian Space Research Organisation (ISRO), India); Saravana B Kumar (Indian Space Research Organisation, India); Chinmay Alpe (SAC ISRO, India)

15:45-16:00 : **Design and Implementation of Equivalent Time Sampling Scheme on FPGA for Impulse GPR**
Vipin Prajapati (Space Application Centre ISRO, India); Saravana B Kumar (Indian Space Research Organisation, India); Prateek Kumar (Space Application Centre ISRO, India); Rinku Atulkumar Agrawal (Space Application Centre ISRO, India); Cvn Rao (Space Applications Centre (ISRO), India)

## OS8 (Mission Planning/Control & Guidance-I) - Session Time , 14:00 - 16:00 hrs

| Location | Hibiscus 1 | Chaired by | N K Philip (URSC, India) |
|---|---|---|---|

14:00-14:15 : **Formal Verification of Voting Algorithms for Safety Critical Systems Using Two Approaches**
Ranjani Krishnan (Vikram Sarabhai Space Centre, India); Ashutosh Gupta (IIT Bombay, India); Nitin Chandrachoodan (Indian Institute of Technology Madras, India); Lalithambika VR (IIT Madras, India)

14:15-14:30 : **Minimal Energy Flight Trajectory Planning Towards a Moving Target**
Dilip Krishnaswamy (QWalks, USA); Maalini Krishna (Cornell University, USA)

14:30- 14:45 : **Exploring the Dyson Ring: Parameters, Stability and Helical Orbit**
Teerth Raval (Indian Institute of Technology Hyderabad, India); Dhruv Srikanth (Indian Institute of Technology Hyderabad, India)

14:45 - 15:00 : **Designing A Federated Learning Satellite System to Incentivize Space Situational Awareness and Mitigate Space Debris**
Gourav Mohanan (Dayananda Sagar University, India); Satthiganahally Vasudev Shrigandha (BE & Ambedkar Institute of Technology, India); Kinit Sai Devatha (Vellore Institute of Technology, Vellore, India); Mudra Manish Bansod (Space Generation Advisory Council, India)

15:00-15:15 : **AoI-Aware Deep Reinforcement Learning Based UAV Path Planning for Defence Applications**
Shilpi Kumari (Indian Institute of Technology (BHU) Varanasi, India); Eshaan Sodhi (Indian Institute of Technology (BHU) Varanasi, India); Dev Gupta (Indian Institute of Technology (BHU) Varanasi, India); Ajay Pratap (Indian Institute of Technology (BHU) Varanasi, India)

15:15-15:30 : **Geosynchronous Satellite Pattern-Of-Life Characterization Through Machine Learning-Based Mode Change Detection and Classification**
Atharva Dehadraya (Indian Institute of Technology Kanpur, India); Vasu Paliwal (Indian Institute of Technology Kanpur, India); Yashika Malhotra (Indian Institute of Technology Kanpur, India); Vishesh Vatsal (SkyServe, India)

15:30-15:45 : **High Accuracy Analysis of NavIC Static Kinematic Performance**
Somnath Mahato (India Meteorological Department, India); Anijt Anjan (India Meteorological Department, India); Ks Hosalikar (India Meteorological Department, India); Mrutyunjay Mohapatra (India Meteorological Department, India)

15:45-16:00 : **Performance Prediction of Antenna Control Servo System Based on LSTM Network**
Nishank Satish (Dayananda Sagar College of Engineering, India); Sajith Menon (Indian Space Research

## **OS9** (SPACE Antennas-I) - Session Time , 14:00 - 16:00 hrs

| Location | Hibiscus 2 | Chaired by | Prof. A.R.Harish<br>(Indian Institute of Techonlogy, Kanpur, India) |
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14:00-14:15: **Realisation of Digitised Airborne AESA Through Multi Channel Receiver**
Karthik Bodaballa (Centre for Airborne Systems DRDO, India); Bhupendra Kumar (Centre for Airborne Systems DRDO, India)

14:15-14:30 : **Multi Layer Patch Antenna Design for C-Band Data Link Application**
Rishi Mishra (CABS, DRDO, India); Manjunatha K (CABS, DRDO, India); Uma S (Drdo, India)

14:30-14:45 : **High Gain Fabry-Perot Cavity Antenna Using Single Layered Partially Reflective Surface**
Ranjit Kumar Dutta (Indian Institute of Technology Kanpur, India); Baisakhi Bandyopadhyay (Indian Institute of Technology Kanpur, India); Kumar Vaibhav Srivastava (Indian Institute of Technology Kanpur, India)

14:45-15:00 : **Compact Flexible SRR-Based WBAN Antenna Using PDMS Substrate for Military Personnel Remote HealthMonitoring**
Pooja Sharma (Motilal Nehru National Institute of Technology Allahabad, India); Kshitij Singh Yadav (Motilal Nehru National Institute of Technology, India); Shweta Singh (Motilal Nehru National Institute of Technology Allahabad, India); Tilakdhari Singh (Motilal Nehru National Institute of Technology, Allahabad, India); Shivesh Tripathi (G L Bajaj Institute of Technology and Management Gr Noida, India); Vijay Shanker Tripathi (Motilal Nehru National Institute of Technology, Allahabad, India)

15:00-15:15 : **Multiple Beamforming Planar Antenna Array With Broadside and End-Fire Radiation Patterns**
Shiva Singh (PDPM IIITDM Jabalpur, India); Abhishek Patel (PDPM IIITDM Jabalpur, India); Manoj Singh Parihar (IIITDM, India)

15:15-15:30 : **Microwave Imaging Using Balanced Antipodal Antenna for Security Applications**
Athul O Asok (Indian Institute of Technology Palakkad, India); Soumik Dey (Indian Institute of Technology Palakkad, India); Sukomal Dey (Indian Institute of Technology Palakkad, India)

15:30-15:45 : **A Multiband Dual-Mode Frequency Reconfigurable Antenna for Various Wireless Applications**
Shweta Singh (Motilal Nehru National Institute of Technology Allahabad, India); Pooja Sharma (Motilal Nehru National Institute of Technology Allahabad, India); Aditya Pal (Motilal Nehru National Institute of Technology, Allahabad, India); Vijay Shanker Tripathi (Motilal Nehru National Institute of Technology, Allahabad, India)

15:45-16:00 : **Inhomogeneous Conformal Rectangular Microstrip Antenna**
Mirza Wazed Ahmed Begg (NIT ROURKELA, India); Sudipta Maity (National Institute of Technology Rourkela, India)

## **OS10** (Satellite Antenna Technologies) - Session Time , 16:30 - 18:30 hrs

| Location | Amaryllis | Chaired by | Lakshmeesha V K (URSC, India) |
|---|---|---|---|

16:30-17:00 : **Invited Talk : Futuristic Trends in Satellite Antenna Technologies**
Dr. M B Mahajan, DD, ASA, SAC, ISRO

17:00-17:15 : **K/Ka-Band Dual Circularly Polarized Shared Aperture Microstrip Array Antenna**
Suvrajit Ghosh (Indian Space Research Organisation (ISRO), India); Atrish Mukherjee (Indian Space Research Organisation (ISRO), India); Sravan Kumar Sagi (Space Applications Centre ISRO, India); Milind B Mahajan (Space Applications Centre, ISRO, India)

17:15-17:30 : **Multiple Panel Array Antenna Concept for SOTM Application**
Daksh Dhiman (Antenna Systems Group & ISRO, India); Sravan Kumar Sagi (Space Applications Centre ISRO, India); Milind B Mahajan (Space Applications Centre, ISRO, India)

17:30-17:45 : **Design of AMC Backed Printed Monopole Antenna for GPS and Satellite Applications**
Baisakhi Bandyopadhyay (Indian Institute of Technology Kanpur, India); Ranjit Kumar Dutta (Indian Institute of Technology Kanpur, India); Kumar Vaibhav Srivastava (Indian Institute of Technology Kanpur, India)

17:45-18:00 : **Rectangular Dielectric Resonator Antenna for Ku-Band Satellite Applications**
Kshitij Singh Yadav (Motilal Nehru National Institute of Technology, India); Piyush Kumar Mishra (Motilal Nehru National Institute of Technology Allahabad, India); Tilakdhari Singh (Motilal Nehru National Institute of Technology, Allahabad, India); Pooja Sharma (Motilal Nehru National Institute of Technology Allahabad, India); Vijay Shanker Tripathi (Motilal Nehru National Institute of Technology, Allahabad, India)

18:00-18:15 : **Design of Wide-Band, Dual Linear Ku-Band CATF Feed for Multi-Beam Satellite Characterization**
Abhinav Kumar Jha (Isro, India); Puneet K Mishra (URSC, India); Haindavi Manigilla (India); Renuka R (URSC, Bangalore, India); Pramod V. B. (UR Rao Satellite Centre, India); RV Nadagouda (Indian Space Research Organisation, India)

18:15- 18:30: **Satellite Antenna Design Using AI Based Approach**
Sanika Borgaonkar (Shri G. S. Institute of Technology and Science, India); Satish Jain (SGSITS INDORE, India)

## OS11 (Metasurfaces and Associated Technologies) - Session Time , 16:30 - 18:30 hrs

| Location | Petunia | Chaired by | Kumar Vaibhav Srivastava (Indian Institute of Technology Kanpur, India) |
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16:30-16:45 : **Metasurface Loaded Conformal Load-Bearing Antenna Structure for Defence Aircraft**
Anubhav Kumar (Indian Institute of Technology Kanpur, India); Raghvendra Kumar Chaudhary (IIT Kanpur, India)

16:45-17:00 : **Monopole-Fed Modulated Metasurface Based Antenna for Beam-Steering Applications**
Dheeraj G (R V College of Engineering, India); Sateesh S Badadal (RV College of Engineering, India); A Mahesh (RV College of Engineering, India); Raju Malleboina (Indian Institute of Science, India); Debdeep Sarkar (Indian Institute of Science, India)

17:00-17:15 : **A Dual-Band Composite Right/Left-Handed SIW Metamaterial Unit Cell for mmWave Communications**
Priya Rahul (KIIT Deemed to Be University, India); Sudhakar Sahu (KIIT University, Bhubaneswar, India); Wriddhi Bhowmik (KIIT, India)

17:15-17:30 : **Efficient Far-Field Microwave WPT Using GRIN Lens Metamaterial at 2.45 GHz**
Shashank Kulkarni (IIT Guwahati, India); Sisir Kumar Nayak (Indian Institute of Technology Guwahati, India)

17:30-17:45 : **Design of a Polarization-Insensitive Wideband Metamaterial Absorber in Mid-Band of Sub-6 GHz for 5G**
Punyatoya Routray (IIT Bhubaneswar, India); Debalina Ghosh (IIT Bhubaneswar, India)

17:45-18:00 : **Wideband Microwave Absorption in C and X Bands With Metalic Resonator and Resistive Ink**
Satya Prasad Mishra (NIT ROURKELA, India); Sudipta Maity (National Institute of Technology Rourkela, India)

18:00-18:15 : **Graphene Metasurface Absorber for Electromagnetic Interference Shielding in Future Space Applications**
Naveen Kumar Maurya (Vishnu Institute of Technology, Bhimavaram, India); G. Challa Ram (Shri Vishnu Engineering College for Women, India); Priyanka Singh (ISTRAC, India)

18:15-18:30 : **All Dielectric LWIR Metasurface Reflectors for Space Technologies**
Jayesh Sadasivan (Mahindra University, India); Sagar Chowdhury (Indian Institute of Technology Madras, India); Rituraj Rituraj (IIT Kanpur, India); Jayasri D (Mahindra University, India); Srini Krishnamurthy (Indian Institute of Technology Madras, India); Sivarama Krishnan (IIT Madras Chennai, India)

## **OS12** (Assembly, Integration & Testing) - Session Time , 16:30 - 18:30 hrs

| Location | Poinsettia 1 | Chaired by | Nagesh S K (URSC, India) |
|---|---|---|---|

16:30-16:45 : **Chandrayaan-3 Lander Module Assembly, Integration and Testing**
Sai Kiran Reddy Dwarampudi (Indian Space Research Organisation, India); Priyanka Mishra (Indian Space Research Organisation, India); Rajesh Muntha (Indian Space Research Organization, India); Muniraja S M (Indian Space Research Organization, India); Binu D (Indian Space Research Organization, India); Renuka R (URSC, Bangalore, India); Pramod V. B. (UR Rao Satellite Centre, India)

16:47-17:04 : **Assembly, Integration and Testing of Special Tests of Chandrayaan-3**
Shweta Shweta (ISRO, India)

17:04-17:21 : **Challenging Integration Aspects of Aditya L1 Spacecraft**
Medasani Thejasree (URSC & ISRO, India)

17:21-17:38: **Integration of INSAT3DS Spacecraft and Challenges**
Anju Damodaran (UR Rao Satellite Centre, India); Md. Tafsir (UR Rao Satellite Centre, India); Jagat Pati Singh (UR Rao Satellite Centre, India); Deepak M (UR Rao Satellite Centre, India); Gomathi, Ramya D (UR Rao Satellite Centre, India); Rajnish Yadav (UR Rao Satellite Centre, India); Vivek Rai Srivastava (UR Rao Satellite Centre, India); Pramod V. B. (UR Rao Satellite Centre, India); RV Nadagouda (Indian Space Research Organisation, India)

17:38-17:55 : **Design and Development of Test Controller and Test Command Control Unit for Integration and Testing of a** Mission System of Airborne Surveillance System
Nidhi Mittal (CABS DRDO, India); Deepthi VD (CABS DRDO, India); Jayaprakash K P (CABS, DRDO, India); A S Kumaran (CABS DRDO, India); Santhya P (CABS, India); K Rajalakshmi Menon (CABS,India)

17:55-18:12 : **An ERAS for Aircraft Electrical System Design Validation, System Integration and Pre-Installation Checks**
Bhavish Kumar (Defence R&D Organisation & Min of Defence, Government of India, India); Rajarajeshwari A (CABS, India); Y Purushottam (CABS DRDO, India); SK Venkatesh (CABS DRDO, India)

18:12-18:17 : **Determination of Shield Height of Power Amplifiers Using 3D EM Simulation**
Vidyalakshmi Mandakolathur Ravi (Tejas Networks, India)

## OS13 (Mission Planning/Control, Navigation & Guidance-II) - Session Time , 16:30 - 18:30 hrs

| Location | Poinsettia 2 | Chaired by | Nandini Harinath (ISTRAC, India) |
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16:30-16:45 : **Formation Control for Tracking Non-Cooperative Space Objects**
Ishfaq Zahoor Bhat (Indian Institute of Science, Bengaluru, India); Debasish Ghose (IISc Bangalore, India)

16:45-170:00 : **Comparative Analysis of A-Star Search and RRT for Autonomous Free-Flying Bots**
Prapti Bordoloi (Nirma University, India); Shashank Pachauri (Space Application Centre, ISRO, India); Himanshu K. Patel (Nirma University & International Society of Automation, India)

17:00-17:15 : **Lambert Problem Based Maneuver Time and Delta-V Estimation**
Gurpreet Singh (URSC & IIIT Delhi, India); Sanat Biswas (IIIT Delhi, India)

17:15-17:30 : **Bioinspired Bald Eagle Search Based Guidance for Fuel-Optimal Spacecraft Docking**
Arya Das (IIT Kanpur, India); Dipak Kumar Giri (IIT KANPUR, India)

17:30-17:45 : **Way-Points Based Trajectory Simulation Using Web Technology for Range Environment**
Amit Sardar (Integrated Test Range, India)

17:45-18:00 : **Inter-Satellite Link Network Scheduler for GNSS Constellation**
Pawan Barnwal (Space Applications Center, ISRO, India); Vijay Singh Bhadouria (Space Applications Centre, ISRO, India); Dhaval Upadhyay (Space Application Centre, India); Subhash Bera (Space Applications Centre & ISRO, India)

18:00-18:15 : **On Cryptographic Approaches for Detecting GNSS Spoofing Attacks**
Jothi Ramalingam (National Institute of Technology Karnataka, Surathkal, India); Veeresh R Maned (National Institute of Technology Karnataka, Surathkal, India)

18:15-18:30 : **Development of Onboard Signal Processor for ISRO's GNSS-Remote Sensing Instrument**
Pratik Sharma (Space Applications Centre, ISRO, India); Saravana B Kumar (Indian Space Research Organisation, India); Pramod Mishra (Indian Space Reasearch Organization India, India); Avadhesh Kumar (SAC-ISRO, India); Shalini Gangele (Space Applications Centre, ISRO, India)

## OS14 (Special Session on AI/ML Technologies for SPACE-II)- Session Time , 16:30 - 18:30 hrs

| Location | Heliconia 1 | Chaired by | Shyam Lal (National Institute of Technology Karnataka, Surathkal, India) |
|---|---|---|---|

16:30-16:45 : **Dynamic Approach for Object Detection Using Deep Reinforcement Learning**
Sheetal Borkar (DIAT, India); Upasna Singh (DIAT, India); Soumya S (DIAT, India)

16:45-17:00: **Denoising Lunar Hyperspectral Images Using CNN With Skip Connections**
Urvashi Mesariya (Nirma University, India); Anuj Shah (Nirma University, India); Anuja Nair (Nirma University, Ahmedabad, Gujarat, India); Tarjni Vyas (Nirma University, India); Shivani Desai (Institute of Technology Nirma University, India); Sudeep Tanwar (Nirma University & Institute of Technology, India)

17:00-17:15: **Machine Learning-Based Models for State Estimation of Ads-B Gps Data**
Leela Vishnu Vardhan (Hindustan Institute of Technology and Science, India)

17:15-17:30: **Single Band NIR-To-RGB Image Colorization Using Attention Guided Conditional GAN**
Moordhan B Songade (Malaviya National Institute of Technology, Jaipur, India); Sunita Arya (Space Applications Centre, ISRO, India); S Manthira Moorthi (Space Applications Centre ISRO, India)

17:30-17:45: **Retinal Microvascular Complications Detection Using Deep Learning Model**
Kavitha M (Vel Tech University, India); Srinivasan R (Vel Tech, India); R Kavitha (Vel Tech Technical University, India); Chilukuri Pavan Chowdary (Veltech University, India); Nithineswara Reddy (Vel Tech Rangarajan Sagunthala R&D Institute of Science and Technology, India); Udaya Bhanu Praksah Reddy (Vel Tech Rangarajan Dr Sagunthala R&D Institute of Science and Technology, India)

17:45-18:00 : **A Novel Deep Learning Approach for Data Analysis on High Resolution Chandrayaan-2 Data**
Jai G Singla (Space Applications Centre, Ahmedabad, India); Rohit Sharma (Manipal University Jaipur, India); Aishwary Shree (Manipal University Jaipur, India); Amitabh Amitabh (Space Applications Centre, India); Nitant Dube (ISRO, India)

18:00-18:15 : **Deep Learning-Based Radio Frequency Interference Classification and Mitigation in Radar Images: A CNN and DnCNN Approach**
Shweta Shukla (ISTRAC, Bangalore, India); Shivangi Mishra (ISTRAC, ISRO, India); Vk Anandan (ISRO, India); Deepak Mishra (IIST, India)

18:15-18:30 : **Attention-Based Semantic Segmentation of Satellites for In-Orbit Space Situational Awareness**
Vivek Parmar (Indian Institute of Technology Delhi & CYRAN AI Solutions, India); Shubham Negi (CYRAN AI Solutions, India); Manan Suri (Indian Institute of Technology - Delhi, India)

## OS15 (Women-Led Technology Developments) - Session Time , 16:30 - 18:30 hrs

| Location | Heliconia 2 | Chaired by | Valarmathi N (URSC, India) |
|---|---|---|---|

16:30-16:45: **An Innovative Long Distance Communication Technique With Suppressed EDFA Transients Using DifferentialSignals**
Meena Dasan (LRDE, DRDO, India); Vidyamol s (LRDE, India); Sarath K T (LRDE Bangalore, India); Arjun Anil Kumar (LRDE, India); Preenu Acha Prasad (LRDE, India)

16:45-17:00 : **A Dual Linear Polarized, Wide Bandwidth, C-Band CATF Feed for Radiated Mode Characterization of Spacecraft Payloads**
Haindavi Manigilla (India); Puneet K Mishra (URSC, India); Renuka R (URSC, Bangalore, India); Pramod V. B. (UR Rao Satellite Centre, India); RV Nadagouda (Indian Space Research Organisation,India)

17:00-17:15 : **A Parabolic Reflector Antenna for C Band Satellite Telemetry Reception During Launch Phase**
Vidya K A (ISRO, India); Umang Parikh (ISRO, Bangalore, India); Vinay Kumar Singh (ISRO, India); Dharvendra Pratap Yadav (ISRO, India); Balaji Rao (ISRO, India); Shwetha N (ISRO, India)

17:15-17:30 : **Design and Development of Liquid Cooling System for Airborne Radar**
Annapurna Sogunuru (CABS, India); Vikram P (CABS, India); Gokul Depuk TP (CABS, India); Priyank Prasad (CABS, India)

17:30-17:45 : **Realization of HMC Based Indigenous High Current Solid State Switch Controller for Aerospace Applications**
Subhashini K (ISRO, India); Anju Singh (URSC, India); Ajay Andhiwal (UR Rao Satellite Centre, ISRO, India); PENCHALA BABU (URSC, India); Jothy Soman (ISRO, India); VANITHA M (URSC, India)

17:45-18:00: **Transit Photometry for Estimating the Velocity of Exoplanets and Specific Defence Applications**
Harshita Bose (Delhi Technological University, India)

18:00-18:15: **Automated Marine Debris Detection From Sentinel-2 Satellite Imagery**
R Priyadarshini (National Institute of Technology, India); Varun Arya (NITK Surathkal, India); Sowmya Kamath S. (National Institute of Technology Karnataka, India)

18:15-18:30: **Energy Efficient and Latency-Constrained Task Offloading in Cooperative Cube Satellite Network**
Shilpi Kumari (Indian Institute of Technology (BHU) Varanasi, India); Shubham Jain (Indian Institute of Technology (BHU) Varanasi, India); Shikhar Srivastav (Indian Institute of Technology (BHU) Varanasi, India); Ajay Pratap (Indian Institute of Technology (BHU) Varanasi, India)

## **OS16** (5G/6G/mm-wave Technologies) - Session Time , 16:30 - 18:30 hrs

| Location | Tulip | Chaired by | Anindya Saha (Tejas Networks, India) |
|---|---|---|---|

16:30-16:15 : **Compact Planar Power Divider for 5G Applications**
Murugesh Surya S (HCLTECH, India); Debojyoti Choudhury (HCLTECH, India); Ranadhir Chatterjee (HCLTECH, India)

16:45-16:30 : **Low Profile Multi-Band Antenna Design for 5G Body Centric Applications**
Saswati Ghosh (HCL Technologies Ltd, India); Debojyoti Choudhury (HCLTECH, India); Chayan Roy (Indian Institute of Technology Kharagpur, India)

17:00-17:15 : **Design and Analysis of Modified WR229 With a Tapered Section for 5G Signal Rejection**
Majji Hima Prasanna Kumar Raja (MCF ISRO, India); Amit Kumar Vishwakarma (MCF ISRO, India); Rajeev Mulugu (MCF ISRO, India); Kirti Agarwal (Indian Space Research Organisation, India); Rajashekar J (MCF ISRO, India); Rajnish Sharma (MCF ISRO, India)

17:15-17:30 : **SIGMAML: SNR-Guided 5G Mobility Management Using Machine Learning Algorithms**
Adnan Farooq Bhat (National Institute of Technology, Srinagar, India); Shahid Mehraj Shah (National Institute of Technology, Srinagar, J&K, India)

17:30-17:45 : **Minimizing Costs for Content Service Providers in 6G Space-Air-Ground Integrated Networks**
Saurabh Kumar Mishra (Indian Institute of Technology Banaras Hindu University, India); Chirag Goyal (Indian Institute of Technology Banaras Hindu University, India); Chetan Agrawal (Indian Institute of Technology Banaras Hindu University, India); Ajay Pratap (Indian Institute of Technology (BHU) Varanasi, India)

17:45-18:00: **A Compact MIMO Dielectric Resonator Antenna for n261 mm-Wave Satellite Communication**
Piyush Patel (Motilal Nehru National Institute of Technology, India); Aditya Pal (Motilal Nehru National Institute of Technology, Allahabad, India); Kshitij Singh Yadav (Motilal Nehru National Institute of Technology, India); Aishwarya Singh (Motilal Nehru National Institute of Technology, India); Vijay Shanker Tripathi (Motilal Nehru National Institute of Technology, Allahabad, India)

18:00-18:15: **Design and Development of Vacuum-Sealed Waveguide Window for mm-Wave and Sub mm-Wave Applications**
Latheef Shaik (Space Applications Centre, India); Ashish Kumar Shukla (Space Applications Centre, India); Satendra Kumar (Space Applications Centre, India); Anamiya Bhattacharya (Indian Space Research Organization, India); Mahendra P Bhadoria (Space Applications Centre, ISRO, India); Harshita Tolani (Indian Space Research Organization, India); Prantik Chakraborty (SAC ISRO, India)

18:15-18:30: : **Fault Resilient Payload Controller With AGOC Algorithm for mm-Wave Humidity Sounder Payload**
Madhav Das (Space Applications Centre, ISRO, Ahmedabad, India); Manish Kumar (Space Applications Centre, India); Ganesh Mulay (Indian Space Research Organisation, India); Vinaykumar S (Space Applications Centre, India); Himanshu Patel (Indian Space Research Organisation (ISRO), India); Saravana B Kumar (Indian Space Research Organisation, India)

## OS17 (IR/Photonics/Electro-optics Technologies) - Session Time , 16:30 - 18:30 hrs

| Location | Hibiscus 1 | Chaired by | Srinivas Talabattula (Indian Institute of Science, India) |
|---|---|---|---|

16:30-17:00 : **Invited Talk : Microwave Photonics-Recent Advancements**
Dr. T Srinivas, IISc, Bangalore

17:00-17:15 : **On-Board Performance of Star Trackers With Very High Absorber CNT Film Coated Baffles**
Girish M Gouda (Indian Space Research Organization (ISRO) & Laboratory for Electro Optics Systems, LEOS-ISRO, India); Debashree Das (Laboratory for Electro Optics Systems-ISRO, India);
Murulidhara K R (Laboratory for Electro-Optics Systems-ISRO, India); Venkateswaran R (Laboratory for Electro Optics Systems-ISRO, India); Kalpana Arvind (LEOS-ISRO, India); Sriram K V (HEAD,India)

17:15-17:30 : **Integrated Electro Optic Infra Red(EO/IR) Simulation for Airborne Maritime Surveillance Boppena Nagaraju (DRDO, India); R Rajesh (CABS, India)**

17:30-17:45 : **Simulation Analysis of Ge2Sb2Te5 Vertical Photodetector on Silicon Photonic for Various Thickness Levels**
Manoj Tolani (Manipal Institute of Technology, Manipal & Manipal Academy of Higher Education, India); Arun Balodi (Dayananda Sagar University, Bengaluru, India); Ambar Bajpai (GITAM University, Bengaluru & IEEE Bangalore Section, India)

17:45-18:00 : **Reduced Graphene Oxide Based X Ray Detector for Space Application**
Anshika Garg (Dayananda Sagar University, India); Baishali Garai (RV University, India); Radhakrishna V. (Space Astronomy Group, U R Rao Satellite Centre, ISRO, India); Koushal Vadodariya (Space Astronomy Group, U R Rao Satellite Centre, ISRO, India)

## **OS18** (Special Session on Software Defined Radio) - Session Time , 16:30 - 18:30 hrs

| Location | Hibiscus 2 | Chaired by | L C Mangal (DRDO, India) |
|---|---|---|---|

16:30-16:45 : **Video Streaming Over Software Defined Radio Using PolarFire FPGA and AD9371**
Prakash Reddy Battu (Microchip, India); Sunny Bezawada (Microchip, India); Kranthikumar Ghanapuram (Microchip, India); Varaprasad Palivela (Microchip, India); Nagasrujit Adimulam (Microchip, India)

16:45-17:00 : **Design Challenges in a SDR Platform for Space Applications**
Girish Chandra Tripathi (Tejas Networks Limited, India); Ratnesh Kumar Gaur (Tejas Networks & IEEE ORG, India)

17:00-17:15 : **Ambiguity Analysis of Multi-User OTFS-LFM Waveform for ISAC**
Anup George Koshy (VIT University, Vellore, India); Nanditha Unnikrishnan (Center for Airborne Systems, Bangalore & Defence Research Development Organization, India); Ramkumar Raghu (Indian Institute of Science, India); R Rajesh (Center of Airborne Systems, DRDO, India)

17:15-17:30 : **FPGA Based OFDM MIMO Transmit Beamformer for Multi-Functional Software Defined Radars**
Ahalya S Kumar (GEC Thrissur, India); Nanditha Unnikrishnan (Center for Airborne Systems, Bangalore & Defence Research Development Organization, India); Ramkumar Raghu (Indian Institute of Science, India); R Rajesh (Center of Airborne Systems, DRDO, India)

17:30-17:45 : **Wideband Predistorter for Frequency Hopped Signal**
Jaya Mishra (Defence Electronics Applications Laboratory & Indian Institute of Technology Roorkee, India); Meenakshi Rawat (IIT Roorkee, India)

17:45-18:00 : **Design of Low Cost FFT Based Spectrum Analyzer for Monitoring Stations**
Amit Kumar Vishwakarma (MCF ISRO, India); Majji Hima Prasanna Kumar Raja (MCF ISRO, India); Kirti Agarwal (Indian Space Research Organisation, India); Rajnish Sharma (MCF ISRO, India)

18:00-18:15 : **Transforming Satellite Ground Station Architecture Using Software-Defined-Radio**
Jitendra Kumar Kapse (MCF ISRO, India); Gireesh M. (Communication Instrumentation and Baseband, MCF, India); Mudumba Ramesh (CIB, MCF, India)

18:15-18:30 : **GNU Radio Based Satellite Communication Tool**
Deekshitha Kg (PES University, India); Chaitanya Patange (PES University, India); Harshitha M (PES University, India); Chaitra Nijalingappa (PES University, India); Ratnakar M (TCS Ltd, India);
Jhanavi R (TCS Ltd, India); Pallavi Ls (TCS Ltd, India); Amagond Biradar (RnI & TCS, India); Ullas Pradhan (TCS Ltd, India); Sai Prasad (TCS Ltd, India); Nagendra Rao G (PES University, India); Manikandan J (PES University (PESU), India)

## **OS19** (Special Session on Quantum Technologies) - Session Time , 11:00 - 13:00 hrs

| Location | Amaryllis | Chaired by | Shri D K Singh, Director, HSFC, ISRO |
|---|---|---|---|

11:00-11:30 : **Invited Talk : Quantum technology Developments in ISRO**
Shri D K Singh, Director, HSFC, ISRO

11:30-11:45 : **A Brief Review and Challenges in Quantum Computing**
Rajendraprasad Reddy Yerabalu (Indian Space Research Organisation, India); Yogesh Kr (URSC Bangalore, India)

11:45-12:00 : **TRNG Integration in FPGA-Based QKD Control Electronics**
Mohd Razin Ashfaque (Centre for Development of Advanced Computing, India); Vaibhav Pratap Singh (Centre for Development of Advanced Computing, India); Mahesh Kondeti (Centre for
Development of Advanced Computing, India); Foram Shingala (SETS Chennai, India); Haribabu Pasupuleti (Centre for Development of Advanced Computing, India); Sudarsan S D (Centre for Development of Advanced Computing (CDAC), India); Anil Prabhakar (IIT Madras, India)

12:00-12:15 : **Low Noise GaN/AlxGa1-xN on SiC Vertical p-n Diodes for Improved Optoelectronic Performance**
Debraj Modak (Abacus Institute of Engineering and Management & JIS GROUP, India); Shajith Nair (Adamas University, India); Abhijit Kundu (Chaibasa Engineering College, India); Indranath Sarkar (JIS College of Engineering, India); Karabi Ganguly (JIS College of Engineering, India); Moumita Mukherjee (Prrofessor, India)

12:15-12:30 : **Atom Interferometry in Space: Improving Quantum Sensors for Space Environments**
Manju Perumbil (Central University of Kerala, India); Stuart S Szigetti (Australian National University, Australia); Simon A Haine (Australian National University, India)

12:30-12:45 : **Designing 256-QAM for High Data Rate Optical Wireless Communication**
Sree Harsha Prada Peesapaty (MIT World Peace University, India); Chinchu Joseph (RF Photonics Lab, India); Eguri Samson Vineeth Kumar (RF Photonics Lab, India); Anjali R Askhedkar (MIT World Peace University & MITWPU, India); Arockia Bazil Raj (Defence Institute of Advanced Technology Pune, India)

12:45-13:00 : **Implementation of PPM Waveform for Underwater Laser Communication**
Pankaj Bhatoe (Defence Electronics Application Laboratory (DEAL) DRDO, India); Rajendra Kumar Gupta (Defence Electronics Application Laboratory, India); Abhishek Jain (Defence Electronics Application Laboratory, India); Sushil Kumar Singh (Defence Electronics Application Laboratory, India); Ghanendra Singh (Defence Electronics Application Laboratory, India); Rajendra Singh (SCIENTIST, India)

## **OS20** (Image/Data/Signal Processing-II) - Session Time , 11:00 - 13:00 hrs

| Location | Petunia | Chaired by | Dr. Narasimhan R.S. |
|---|---|---|---|

11:00-11:15: **Chandrayaan-2 Onboard Results for Lander Horizontal Velocity Camera and Improvement for Chandrayaan-3**
Tanisha Bhatia (Scientist, India); Amit Maji (Scientist, India); Jayanta Laha (Laboratory for Electro Optics Systems, ISRO, India); Priyabrata Senapati (Scientist, India); Vijaya Y (Scientist, India)

11:15-11:30: **Enhancing Resilience: Redundancy Reduction for Object Detection in Adversarial Conditions**
Shubham Agarwal (Ben-Gurion University of the Negev, Israel); Raz Birman (Ben Gurion University of the Negev, Israel); Ofer Hadar (Ben Gurion University of the Negev, Israel)

11:30-11:45 : **Bearing Only Track to Track Association for Airborne Surveillance System**
B R Kapuriya (CABS, India); A Muthukumar (CABS, India); Renu Kumari Chauhan (Centre for Airborne Systems, India); R Rajesh (CABS, India)

11:45-12 :00 **PLANET: Multi-Class Patch Layer Adaptive Network for Satellite Image Segmentation**
MD Samiul Islam (University of Alberta, Canada); Irene Cheng (University of Alberta, Canada)

12:00-12:15 : **Vegetation Health Assessment Through a Novel Index Approximation Filter and K-Means Clustering**
Fei Yang (University of Alberta, Canada); Irene Cheng (University of Alberta, Canada)

12:15-12:30: **Distributed Environment Monitoring Using Minimum Volume Ellipsoid**
Prabeen Kumar Sahu (NIT Rourkela, India); Upendra Kumar Sahoo (NIT Rourkela, India); Swarna Panda (National Institute of Technology, Rourkela, India); Santos Ku Das (National Institute of Technology Rourkela, India)

## **OS21** (RF Switches/RFID) - Session Time , 11:00 - 13:00 hrs

| Location | Poinsettia 1 | Chaired by | Meena Mishra (SSPL, Timarpur, India) |
|---|---|---|---|

11:00-11:15 : **High-Power SPDT Switch With an Integrated Driver for P-Band Airborne RADAR Application**
Srishti Srivastava (Indian Space Research Organization, India); Shruti Sinha (SAC, ISRO Ahmedabad, India); Jolly Dhar (Space Applications Centre, ISRO, India); Cvn Rao (Space Applications Centre (ISRO), India)

11:15-11:30 : **A Systematic Approach to Mitigate Parasitics for Wide-Band High Isolation CMOS SPDT Switch**
Jyotsna Ladkani (ISRO, India); Bhumika Deo (ISRO, India); Hari Shanker Gupta (Space Applications Centre ISRO, India)

11:30-11:45 : **Evaluation of Power Transfer Efficiency and Received Power for Near-Field UHF RFID System**
Dontula Ravanth (Defence Institute of Advanced Technology, India); Sanket Kalamkar (Defence Institute of Advanced Technology (DIAT), India); Rajesh K Singh (Defence Institute of Advanced Technology, India); Ashish Jindal (DRDO & IIT Delhi, India)

11:45-12:00 : **Polarization Switchable Compact Dual-Band Slot Antenna for Low-Cost RFID Reader**
Sanket Kalamkar (Defence Institute of Advanced Technology (DIAT), India); Rajesh K Singh (Defence Institute of Advanced Technology, India); KP Ray (DIAT, Pune, India)

12:00-12:15 : **Design and Analysis of 4x4 EBG Backed Miniaturized Disc-Shaped Wearable RFID Tag Antenna for Biomedical Communications**
Shubhanshi Jain (Indian Institute of Space Science and Technology, Thiruvananthpuram & Banasthali Vidyapith, India); Gautham Purohit (Academia & Indian Institute of Space Science and Technology, India); Swarnadipto Ghosh (Indian Institute of Space Science and Technology, Thiruvananthapuram, India); Chinmoy Saha (Indian Institute of Space Science and Technology, India & Royal Military College of Canada, Canada)

## **OS22** (Checkout Systems) - Session Time , 11:00 - 13:00 hrs

| Location | Poinsettia 2 | Chaired by | Mr. M. R. Raghavendra, ISTRAC |
|---|---|---|---|

11:00-11:15 : **Automation and Optimization of Spacecraft RF Checkout Through Software Solution**
Narayana Rao G S (UR Rao Satellite Centre, Indian Space Research Organisation, India); Prakriti Sahay (UR Rao Satellite Center, Indian Space Research Organisation, India, India); Abhishek Kumar (UR Rao Satellite Center, Indian Space Research Organisation, India, India); Raja Sharma (UR Rao Satellite Center, Indian Space Research Organisation, India); Subbaraya Sastry C V R (UR Rao Satellite Center, Indian Space Research Organisation, India, India)

11:15-11:30 : **Development of FPGA Based Automated System for Testing Launch Vehicle Checkout Umbilical Interfaces**
Hareesh Ravindran (SDSC-SHAR, ISRO, India); R Vijay Kumar (SDSC-SHAR, ISRO, India); Kandula Koteswara Rao (SDSC-SHAR, ISRO, India); Parvataneni Sunil (SDSC-SHAR, ISRO, India)

11:30-11:45 : **Grounding Architecture of Checkout Systems for Testing Triple Independent Bus Systems**
Tushar Golani (ISRO, India); Meshram Vijay Akshay (ISRO, India); Gladys Priyadarshini (ISRO, India); Atul Kant Dixit (ISRO, India); Sachin Gupta (ISRO, India); Krishnan V (ISRO, India)

11:45-12:00 : **Onboard Power Distribution and Measurement for Launch Vehicle Avionics System With Reduced Umbilical Interface**
Sheikh Abdul Vaheed (ISRO, India); Vaddavalli Dilipkumar (VSSC, ISRO, India); A Muralikrishna (ISRO, India); Binny Mathew (ISRO, India)

12:00-12:15 : **Hybrid Based Test Methodology for Characterization of High Power Payloads**
Shiv Shankar Pareek (ISRO & Space Applications Centre, India); Vinay Yadav (ISRO, India); Rakesh Vyas (Space Applications Centre, India)

12:15-12:30 : **DESIGN and SIMULATION of 32 x 64 RF SWITCH MATRIX Up to 40 GHz**
chittaranjan swain (CABS DRDO, India); Thara Mathew (CABS, India); Jayaprakash K P (CABS, DRDO, India); A S Kumaran (CABS DRDO, India); Santhya P (CABS, India); K Rajalakshmi Menon (CABS, India)

## **OS23** (Special Session on AI/ML Technologies for SPACE-III)- Session Time , 11:00 - 13:00 hrs

| Location | Heliconia 1 | Chaired by | Suman Agrawal (Defence Research and Development Office, India) |
|---|---|---|---|

11:00-11:15 : **Design and Implementation of CNN-Based Custom Net Architecture With Improved Inference Time for Realtime Remote Sensing Application**

Gaurav Upadhyay (Indian Institute of Technology Delhi & URSC - U R Rao Satellite Centre Bengaluru, India); Srijan Ghosal (URSC, India); Subrat Kar (Indian Institute of Technology, Delhi, India); Khayali Jain (URSC, India); Shantala S H (URSC, India); Thakar Lalitkrushna J (URSC, India); Srividhya S (ISRO, India); Sunil Alias Balwantrao (URSC, India)

11:15-11:30 : **Multi-Stage UAV-Based System for Scalable and Accurate Crop Health Monitoring**

Kaustubh Surendra Gode (Sardar Patel Institute of Technology, India); Kaustubh Suresh Gharat (Sardar Patel Institute of Technology, India); Harshita Umesh Jogi (Sardar Patel Institute of Technology, India); Advait Ravi Sapkal (Sardar Patel Institute of Technology, India); Ronak S Thakar (Sardar Patel Institute of Technology, India); Shubham Vishwakarma (Sardar Patel Institute of Technology, India); Kiran Talele (Sardar Patel Institute of Technology, India); Sujata Kulkarni (SPIT, India)

11:30-11:45 : **A Novel Feature Selection Method for Solar Flare Forecasting**

Ashwini Nagaraj Shenoy (National Institute of Technology Karnataka, India); Deepu Vijayasenan (Associate Professor, India); Raghavendra S Bobbi (National Institute of Technology Karnataka, India); Sreejith Padinhatteeri (Manipal University, India); Adithya H N (Manipal University, India)

11:45-12:00 : **Investigation of Clustering Methods for SDSS Galaxy Images Through Feature Extraction With VGG-16**

Snigdha Sen (Manipal Institute of Technology Bengaluru, Manipal Academy of Higher Education, Manipal, India); Pavan Chakraborty (Indian Institute of Information Technology, Allahabad, India)

12:00-12:15 : **Remote Sensing Image Super-Resolution Using Deep Learning**

P Rajeshwari (India); Pamujula Lakshmi Priya (India); M Pooja (India); Ganta Abhishek (India)

12:15-12:30 : **ML Based Model for Forecasting Ionospheric Scintillations Using GAGAN Data**

Lakshmanna Kuruva (Chaitanya Bharathi Institute of Technology & Jawaharlal Nehru Technological University Anantapur, India); Maheswara Rao Avula (JNTUA Anantapur, India); A. D. Sarma (Chaitanya Bharathi Institute of Technology & Research and Training Unit for Navigational Electronics, India)

12:30-12:45 : **Multi Feature Descriptor Based Ship Wake Detection Using AdaBoost-Weighted Extreme Learning Machine**

Annalakshmi Ganesan (Vel Tech Rangarajan Sagunthala R&D Institute of Science and Technology, India)

12:45-13 :00 **ML Based Model for Detection of Ionospheric Scintillations Using PolaRx5S Data**

Lakshmanna Kuruva (Chaitanya Bharathi Institute of Technology & Jawaharlal Nehru Technological University Anantapur, India); Maheswara Rao Avula (JNTUA Anantapur, India); A. D. Sarma (Chaitanya Bharathi Institute of Technology & Research and Training Unit for Navigational Electronics, India)

## OS24 (Mechanism & Robotics)- Session Time , 11:00 - 13:00 hrs

| Location | Heliconia 2 | Chaired by | Govinda K V (URSC, India)<br>N VISHWANATH (URSC, India) |
|---|---|---|---|

11:00-11:15 : **Design and Development of Deployment Mechanism for 3.6m Umbrella Type Space Deployable AntennaReflector**
Pradeep Ananthanarayanan (Space Applications Center & Indian Space Research Organization, India); Akshay Duttaprasad Khamkar (Space Applications Centre, ISRO, India); Hemant Arora (Space Applications Centre, ISRO, India); Arup Kumar Hait (Space Applications Centre, ISRO, India)

11:15-11:30 : **Design & Development of Periscope Coarse Pointing Gimbal Mechanism**
Bhavika Sharma (VIT Bhopal University, India); Ankit Sharma (Space Application Center (ISRO), India); Hemant Arora (Space Applications Centre, ISRO, India); Ankush D Tharkar (VIT Bhopal University, India)

11:30-11:45 : **On the Control Design of Half Humanoid for Space Applications**
Sangeetha G. R. (Indian Space Research Organisation & ISRO Inertial Systems Unit, India); Harikumar Ganesan (Indian Institute of Technology Madras, India); Durairaj R (Scientist, India)

11:45-12:00: **Design of a Series-Elastic Actuator for a Humanoid Robot for Space Applications**
Shubhankar Riswadkar (Rwth Aachen University, Germany); S Barat (Indian Institute of Technology, Gandhinagar, India); Harish Palanthandalam Madapusi (IIT Gandhinagar, India)

12:00-12:15 : **Design and Development of Underactuated Soft Robotic Gripper for Space Applications**
Saloni Malviya (VIT Bhopal, India); Ankit Sharma (Space Application Center (ISRO), India); Hemant Arora (Space Applications Centre, ISRO, India); Prashant GK (VIT Bhopal, India)

12:15-12:30 : **Satellite-Borne Space Waste Management System Using 3D Printing and Robotics**
Geethika Ranjith (Mar Athanasius College of Engineering, India); Nandana Jayachandran (Mar Athanasius College of Engineering, India); Aleena Mary Anil (Mar Athanasius College of Engineering, India)

12:30-12:45 : **Origami for Deployment of Rigid Panel Array During Space Applications**
V Sri Pavan RaviChand (IISc Bangalore, India); Shishir Kolathaya (IISc Bangalore, India); K Balaji (URSC Bangalore, India)

## OS25 (Microwave Devices)- Session Time , 11:00 - 13:00 hrs

| Location | Tulip | Chaired by | Madhumita Chakravarti |
|---|---|---|---|

11:00-11:15 : **Design of a Very Low Noise Figure Wideband LNA With Differential Output for RF Reciever Applications**
Rohit Kumar (Indian Institute of Technology Dharwad, India); Heena Mulla (Indian Institute of Technology Dharwad, India); Nagaveni S (IIT Dharwad, India)

11:15-11:30 : **Design and Realization of Cryogenic Low Noise Amplifier for S-Band**
Akshay Siva G S (Engineer Contract, India); Vismitha Pramod (Engineer Contract, India); Shahul Hameed V (Scientist, India); Sunaina S (Engineer Contract, India)

11:30-11:45 : **Advanced Design Strategies for Ultrawideband Power Amplifiers Utilizing Multi-Branch Matching Networks**
Hemant Kumari (National Institute of Technology Meghalaya, India); Gaurav Bhargava (National Institute of Technology Meghalaya, India); Shubhankar Majumdar (National Institute of Technology Meghalaya, India)

11:45-12:00 : **High Efficiency 70W C-Band GaN MMIC PA for Space-Borne RADAR Applications**
Samriti Kumar Garg (Scientist/Engineer, Space Applications Centre, Indian Space Research Organization, India); Tuhin Paul (Space Applications Centre (ISRO), India); Mukesh Patel (SAC, ISRO, India); Cvn Rao (Space Applications Centre (ISRO), India)

12:00-12:15 : **Design of an 8-Way 20kW Co-Axial Radial Power Combiner for High Power S-Band Applications**
Manoj Kumar (Indian Institute of Technology Roorkee, India); Gowrish Basavarajappa (Indian Institute of Technology Roorkee, India); Kaushik Manjanbail (Rapid Parts Solutions Pvt. Ltd., India); A K Singh (Individual Entrepreneur, India)

12:15-12:30 : **A C-Ku Band Dual 16 Channel T/R Module Plank for EW Systems**
ARP Mallika (Gov & Defence Electronics Research Laboratory, India); Latha Thokala (DRDO Hyderabad, India); D. Srinivas Rao (Scientist D, India); Sravani Matham (DRDO, India); C. Vasant Kumar (DRDO, India); G. Syamala Rao (DRDO, India); Y. Hemalatha (DRDO, India)

12:30-12:45 : **Post-Fabrication Tuning of Waveguide Using Time Domain Reflectometry**
Nishant Shukla (SAC, ISRO & IIT Kanpur, India); Akhilesh Mohan (Indian Institute of Technology Roorkee, India); Vikas Gupta (SAC-ISRO, India); Praveen Ambati (SAC-ISRO, India); Jayesh Thakkar (SAC, ISRO, India)

12:45-13:00 : **Design of Higher Order GaAs MMIC Based Ku-Band Quintupler**
Satish Nandanwar (SAC, ISRO, India); Rati Singh (SAC, ISRO, India); Jayesh Thakkar (SAC, ISRO, India)

## OS26 (RIS/FSS based Technologies)- Session Time , 11:00 - 13:00 hrs

| Location | Hibiscus 1 | Chaired by | Milind B Mahajan<br>(Space Applications Centre, ISRO, India) |
|---|---|---|---|

11:00-11:15 : **Multi-Beam Passive RIS for Simultaneous Multi-Target Connectivity Applications**
Sylvie Rana (Indian Institute of Technology Kanpur, India); Sai Sreenija Yallanki (Indian Institute of Technology Kanpur, India); Sumit Kumar (Indian Institute of Technology Kanpur, India); A. r. Harish (Indian Institute of Technology Kanpur, India)

11:15-11:30 : **Direction Finding Using Null Steering Technique**
Sumit Kumar (Indian Institute of Technology Kanpur, India); Rishi Mishra (Indian Institute of Technology Kanpur, India); Sai Sreenija Yallanki (Indian Institute of Technology Kanpur, India); Sylvie Rana (Indian Institute of Technology Kanpur, India); A. r. Harish (Indian Institute of Technology Kanpur, India)

11:15-11:30 : **Reconfigurable Intelligent Surfaces Aided Localization Using Compressive Sensing**
Priyanka Khedar (CABS, DRDO, India); Sony Soman Oommen (CABS, India); K Rajalakshmi Menon (CABS, India)

11:15-11:30 : **RIS-Aided Electronic Countermeasures**
Ilter Erol Gurol (Koc University & ASELSAN AS & ASELSAN AS, Turkey); Ertugrul Basar (Koc University, Turkey)

12:00-12:15 : **A Compact Transparent FSS for Tri-Band Applications With Polarization Insensitive and RCS Reduction**
Yogesh Solunke (VNIT NAGPUR, India); Deven Patanvariya (NIT Goa, India); Ashwin Kothari (VNIT NAgpur, India)

12:15-12:30 : **Compact Single Layer Enhanced Capacitance Loaded Modified Jerusalem Cross FSS for Dual-Band Orthogonal Linear to Circular Conversion**
Soumik Dey (Indian Institute of Technology Palakkad, India); Amith P Joy (Indian Institute of Technology Palakkad, India); Athul O Asok (Indian Institute of Technology Palakkad, India); Sukomal Dey (Indian Institute of Technology Palakkad, India)

12:30-12:45 : **Wide Angle Stable Non-Resonant Inductive Grid Loaded Modified Jerusalem Cross FSS for Microstrip Antenna Gain Enhancement**
Amith P Joy (Indian Institute of Technology Palakkad, India); Soumik Dey (Indian Institute of Technology Palakkad, India); Athul O Asok (Indian Institute of Technology Palakkad, India); Sukomal Dey (Indian Institute of Technology Palakkad, India)

12:45-13:00 : **Frequency Selective Surface Based Absorber/Rasorber With Transmission Absorption Transmission Response**
Neeharika Verma (Guru Ghasidas Vishwavidyalaya Bilaspur, India); Shrey Anant Sandiman (Central University Bilaspur, India); Deepak Rathore (IIT Guwahati & GGV Bilaspur, India); Nipun Kumar Mishra (Guru Ghasidas Vishwavidyalaya Central University, India)

## OS27 (Navigation Technologies-I) - Session Time , 11:00 - 13:00 hrs

| Location | Hibiscus 2 | Chaired by | R RAMASUBRAMANIAN (URSC, India) |
|---|---|---|---|

11:00-11:15 : **Design of Error Handling and Redundancy Management of Dual Redundant GNSS Embedded Navigation Computer for Launch Vehicle Missions**
Biju V S (ISRO, India); Vinoj VS (ISRO, India); Aneesh Thampi (ISRO, India); Mohammed Basim (ISRO, India); Anand Shankar (ISRO, India); Krishan Kumar (ISRO, India); Rekha AR (ISRO, India); Radhakrishna Pillai C (ISRO, India)

11:15-11:30 : **Aerodynamic Angle Estimation of a Fighter Aircraft Under Highly Maneuverable Conditions Without GPS**
Shikha Jain (National Aerospace Lab & CSIR- NAL, India); Kamali Chandrasekaran (CSIR National Aerospace Laboratories, India)

11:30-11:45 : **Evaluation of Navigation Solution Using Carrier Doppler Shifts From LEO Constellations and Its Combination With NavIC**
Vimalkumar Bhandari (Indian Space Research Organisation (ISRO), India); Nishkam Jain (Indian Space Research Organisation (ISRO), India); Puneet Kumar Agrawal (Indian Space Research Organisation (ISRO), India); Raksha Rai (Indian Space Research Organisation (ISRO), India)

11:45-12:00 : **Relative Terrain Navigation Based Lunar Lander Simulator Using Computer Vision Techniques**
Sudip Mondal (Indian Institute of Technology Bombay, India); Sukumar Srikant (Indian Institute of Technology Bombay, India)

12:00-12:15 : **Modeling of X-Ray Pulsar Timing Profiles and Its Impact on Position Estimation for Navigation**
Subhajit Majumder (Star Sensor System Group, Laboratory for Electro-Optics Systems, ISRO & Department of Electronic Systems Engineering, Indian Institute of Science, India); Koushal Vadodariya (Space Astronomy Group, U R Rao Satellite Centre, ISRO, India); Radhakrishna V. (Space Astronomy Group, U R Rao Satellite Centre, ISRO, India); Mayank Shrivastava (Indian Institute of Science Bangalore, India); Gyanendra Kumar Kashyap (Star Sensor System Group, Laboratory for Electro-Optics Systems, ISRO, India)

12:15-12:30 : **Safe Deep Reinforcement Learning-Based Controller (SDRLC) for Autonomous Navigation of Planetary Rovers**
Rudrashis Majumder (Indian Institute of Science, India); Ravi Kiran Jana (Indian Space Research Organization, India); Bharathwaj K S (Indian Institute of Science, India); V Sundaram Suresh (Indian Institute of Science, India)

12:30-12:45 : **Acquisition and Tracking of NavIC L1 SPS Signals**
Chittimalla Srinu (Osmania University & NERTU, India); Laxminarayana Parayitam (Osmania University, India)

12:45-13:00 **First Pioneering Soil Moisture Estimation Software Leveraging Navigation Signals From India's NavIC Satellite**
Vivek Chamoli (Graphic Era Hill University Dehradun, India)

## OS28 (Radar Technologies: A DRDO Perspective on Innovations) - Session Time , 14:00 - 16:00 hrs

| Location | Amaryllis | Chaired by | Dr. A. Vengadarajan, Sc. H, LRDE<br>Mr. Suchith Rajgopal, Sc. G, LRDE |
|---|---|---|---|

14.00-14.30: Invited Talk: Futuristic Radar Systems & Technologies;
Mr. Suchith Rajgopal, Sc. G, LRDE

14.30-14.45: Futuristic Trends in Phased Array Antenna Technologies:
Dr. Ashutosh Kedar, Sc. F, LRDE

14.45-15.00: Wideband T/R Module Technologies for Radar Applications:
Mr. Sreenivasulu, K Sc. G, LRDE

15.00-15.15: Receiver/Exciter Technologies for Radars:
Mr. Sumanta PAl, Sc. F, LRDE

15.15-15.30: Airborne Radar Signal Processing:
Dr. Narasimhan R S, Sc. F, LRDE

15.30-15.45: Counter measure system for Drones:
Mr. Azeez, Sc. G, LRDE

## OS29 (Special Session on Human in Space/Simulators) - Session Time , 14:00 - 16:00 hrs

| Location | Petunia | Chaired by | Jasvinder Singh Khoral (URSC, India) |
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14:00-14:30 : **Invited Talk : Bhartiya Antariksh Station (BAS)**
Dr. Jasvinder Singh Khoral, Program Director, Space Exploration and Project Director, BASa

14:30-14:45 : **Embedded Crew Interface and Display System for Gaganyaan Mission**
Vikas Singh (Indian Space Research Organisation, India); Saravana B Kumar (Indian Space Research Organisation, India); Abhishek Kunal (Indian Space Research Organisation, India); Satyendra Kumar (Indian Space Research Organisation, India); Ritesh Kumar Sharma (Space Applications Centre, India)

14:45-15:00 : **Fault Tolerant Crew Cabin Systems Controller for Gaganyaan**
Kiral Ghodadra (Space Applications Centre, ISRO, India); Avadhesh Kumar (Space Applications Centre, ISRO, India, India); Ramesh Kumar (Space Applications Centre, ISRO, India, India); Rahulkumar M Dhingani (Space Applications Centre, ISRO, India); Himanshu Patel (Indian Space Research Organisation (ISRO), India); Saravana B Kumar (Indian Space Research Organisation,India)

15:00-11:15 : **Comparison of View Orientation in Manned Spacecraft Through Virtual Reality Simulation**
Ajit Krishnan (ISRO, India); Himanshu Vishwakarma (Indian Institute of Science, Bangalore, India); Maharudra Kharsade (Indian Institute of Science, India); Pradipta Biswas (Indian Institute of Science, India)

15:15-15:30 : **Spacecraft Manipulator System Simulator**
Anumandla Sukrutha (Indian Space Research Organisation, India); Gopalakrishnan L (Indian Space Research Organisation, India); Pallabi Sinha (Indian Space Research Organisation, India); Pranay Pallav Tripathi (Indian Space Research Organisation, India); Raghav Hariharan (Indian Space Research Organisation, India); Sathwik Reddy Majji (Indian Space Research Organisation, India); Shikhar D (Indian Space Research Organisation, India); Sreelatha A (Indian Space Research Organisation, India)

15:30-15:45 : **Design and Characterization of Thruster System Using Blowers for Upcoming Spacecraft Simulator**
Aditya Prakash (Indian Institute of Technology Kanpur, India); Mokkapati Shanmukha Sree (Indian Institute of Technology Kanpur, India); Nitika Jaggi (Indian Institute of Technology Kanpur, India); Dipak Kumar Giri (IIT KANPUR, India)

15:45-16:00 : **Design and Evaluation of an Early Fire Detector for Human Space Capsule**
Badrisha R (PES University, India); Hrishikesh Milind Gawas (PES University, India); Akash Gupta (SAC-ISRO, India); Payal Sharma (SAC-ISRO, India); Manikandan J (PES University (PESU), India)

## **OS30** (THz Technologies)- Session Time , 14:00 - 16:00 hrs

| Location | Poinsettia 1 | Chaired by | Sanjeev Kulshrestha (Space Application Centre, ISRO, India) |
|---|---|---|---|

14:00-14:15 : **Design of Compact, Coherent, High Power THz Backward-Wave Oscillator**
Vishnu Srivastava (CSIR-Central Electronics Engineering Research Institute Pilani & Academy for Scientific & Innovative Research (Ac-SIR), New Delhi, India)

14:15-14:30 : **Terahertz-Based Nondestructive Testing of Ceramic Matrix Composites**
A. Mercy Latha (Central Electronics Engineering Research Institute, India); Rishi Ranjan (Central Electronics Engineering Research Institute, India); Vijay Petley (Gas Turbine Research Establishment, India)

14:30-14:45 : **Terahertz Package Scanner for Detection of Concealed Objects**
Nimish Dixit (Defence R&D Organization, India); Ajay Mishra (DRDO, India); Sudhir Khare (DRDO, India); Shriganesh Prabhu (TIFR, India); Ajay Kumar (DRDO, India); Binoy Kumar Das (DRDO, India)

14:45-15:00 : **Far Field Antenna Measurement System Using Frequency Extenders in Sub-THz Frequency Range**
Dharmendra Singh (Space Applications Centre, SAC ISRO & Not Applicable, India)

15:00-15:15 : **Metasurface Perfect Absorber With Wide Frequency Tunability for Smart Terahertz Applications**
Naveen Kumar Maurya (Vishnu Institute of Technology, Bhimavaram, India); G. Challa Ram (Shri Vishnu Engineering College for Women, India)

15:15-15:30 : **Compound Planetary Gearbox Based Geared Rotary Actuator**
Anuj Kumar Singh (R&DE DRDO, India); Surender Sharma (R&DE DRDO, India); Sanjay Kumar (R&DE DRDO, India); Tushar Kant Santosh (R&DE DRDO, India); Sriramulu Kant Bokka (R&DE DRDO, India)

## OS31 (System Engineering) - Session Time , 14:00 - 16:00 hrs

| Location | Poinsettia 2 | Chaired by | Mark E Davis (Medavis Consulting, USA) |
|---|---|---|---|

**14:00-14:15 : MBSE Driven End to End LEO Satellite to Ground Station Communication System**
Tejkiran Arun Patil (Ansys, India); Nijas Cm (Ansys Software Pvt Ltd & Ansys, India); Himangshu Bora (Ansys Inc, India); Tejas Jeurkar (Ansys Inc., India); Shital Joshi (Ansys, India); Aniruddha Mukhopadhyay (Ansys, USA)

**14:15-14:30 : Manned Intelligence Surveillance and Reconnaissance (Manned-ISR) Systems - an Indigenous Approach**
Jayaprakash K P (CABS, DRDO, India); A S Kumaran (CABS DRDO, India); Santhya P (CABS, India); K Rajalakshmi Menon (CABS, India)

**14:30-14:45 : Easing Adoption of Model Based System Engineering With Application of Generative AI**
Anamika Patel (CABS, India); Maheshwaran Y (CABS, India); Santhya P (CABS, India)

**14:45-15:00 : Centralized Simulation Controller Framework for Airborne Sensor Simulation**
Rajesh Gandhi (CABS, India); R Rajesh (CABS, India)

**15:00-15:15 : Retarding Field Energy Analyzer for Measurement of Ion Energy Distribution in Cold Plasma**
James Raja S (National Institute of Technology Calicut, India); Anuj Sharma (National Institute of Technology Calicut, India); Sayani Guha (National Institute of Technology Calicut, India); Lintu Rajan (NITC, India); Venu Anand (National Institute of Technology Calicut, India)

**15:15-15:30 : Electromagnetic Compatibility in Wearable Devices Using Artificial Magnetic Conducting Surfaces**
Ashish Raj (Birla Institute of Technology Mesra, India); Nisha Gupta (Biral Institute of Technology, Mesra, India); Itu Snigdh (BIT Mesra, India)

**15:30-15:45 : Effective EMI Mitigation Techniques for Enhancing EVM Performance in Digital System**
Jigar Limbachiya (Space Applications Centre & Indian Space Research Organization, India); Mukesh K Patel (Space Applications Centre, ISRO, India); Neeraj Mishra (Indian Space Research Organization India, India); Bhuwaneshwar Semwal (Space Applications Centre, ISRO, India); Anil Shah (SAC, ISRO, India); Shilpa Pandya (Space Applications Centre (ISRO), India)

**15:45-16:00 : A Mode Converting Antenna Based on Step Waveguide Discontinuities for High Power Microwave Applications**
Neha Parmar (BITS PILANI HYDERABAD, India); Narain Shriraam M. S. (BITS Pilani Hyderabad Campus, India); D Ratan Sanjay (DRDO, India); Runa Kumari (Birla Institute of Technology & Science, Pilani, Hyderabad Campus, India & None, unknown); Harish V. Dixit (Birla Institute of Technology and Science-Pilani, Hyderabad Campus & Vidyavardhini's College of Engineering and Technology, India)

## **OS32** (Special Session on AI/ML Technologies for SPACE-IV) Time , 14:00 - 16:00 hrs

| Location | Heliconia 1 | Chaired by | Manoj Choudhary (Samsung India Software Operations, India) |
|---|---|---|---|

**14:00-14:15 : Image Based Spacecraft Health Evaluation by AIML Based Expert System**

Bijoy Kumar Dai (ISTRAC & Jadavpur University, India); Debashish Paul (ISTRAC, India); Priyanka Singh (ISTRAC, India); Gubbala Kiran (ISTRAC, India); Roopa Mv (ISTRAC, India); Leo Jackson (ISTRAC, India); Nandini Harinath (ISTRAC, India); B N Ramakrishna (ISTRAC-ISRO, India)

**14:15-14:30 : Interactive YOLO-Based Object Detection Using a Polygonal Region of Interest for Airborne Surveillance Applications**

Jithin Vinod (New Horizon College of Engineering, Bengaluru, India); TM Dhipu (Center of Airborne Systems, DRDO, India); R Rajesh (Center of Airborne Systems, DRDO, India)

**14:30-14:45 : ML Driven Thermal Analysis for a Real-Time Control System in Satellites**

Himangshu Bora (Ansys Inc, India); Prem Andrade (Ansys Inc., India); L. Srinivasa Mohan (Ansys Inc., India); Akira Fujii (Ansys Inc., Japan); Hemesh Patil (Ansys Inc., India); Tejas Jeurkar (Ansys Inc., India)

**14:45-15:00 : Aerodynamic Design Optimization of an Aerospace Vehicle Using Automated Data-Driven Machine Learning Technique**

Shiladitya Bhowmick (DRDL DRDO & IIT CHENNAI, India); Shruthi Bogoju (Axiomatic iTech Pvt. Ltd., India); S Rama (DRDL DRDO, India)

**15:00-15:15 : Anomaly Detection in Spacecraft Telemetry Using Similarity Metrics and Isolation Forest**

Mahesh Bollam (MCF, ISRO, India); Praful H Roy (MCF, India); Anuj Jagtap (MCF, India); BALARAM MULLAPUDI (Indian Space Research Organisation, India); Anjali Verma (MCF, India)

**15:15-15:30 : Deep Learning Enabled Algorithm for Automatic Modulation Classification**

Brahmjit Singh (National Institute of Technology Kurukshetra, India); Shalu Shalu (NIT Kurukshetra, India); Chandra Prakash (Space Applications Centre & ISRO, India)

## **OS33** (Mission Planning/Control & Guidance-III) Time , 14:00 - 16:00 hrs

| Location | Heliconia 2 | Chaired by | Radhakant Padhi (Indian Institute of Science, Bangalore, India) |
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14:00-14:15 : **Obtaining Smoothed Airdata During Wake Penetrations and Atmospheric Disturbances**
Kamali Chandrasekaran (CSIR National Aerospace Laboratories, India)

14:15-14:30 : **Fusion of Flush Port Measurements With Inertial Sensors**
Kamali Chandrasekaran (CSIR National Aerospace Laboratories, India)

14:30-14:45 : **Software-In-The-Loop Simulation for Low-Speed, High-Altitude Platform**
Shikha Jain (National Aerospace Lab & CSIR- NAL, India); Omkar Halbe (Senior Scientist, India); Kapil Sachan (CSIR National Aerospace Laboratories, India); Vijeesh Theningaledathil (CSIR National Aerospace Laboratories, India); Suraj C (NAL, India); Avinash Nayak (NAL, India)

14:45-15:00 : **Beyond Boundaries: Collaborative Task Completion Using Heterogeneous Swarm**
Rudraksha Rajendra Bandodkar (Goa College of Engineering, India); Steven Tambi Vazhappully (Goa College of Engineering, India); Akarsh Sharad Malvekar (Goa College of Engineering, India); Amogha Sushant Kantak (Goa College of Engineering, India); Milind Fernandes (Goa University, India)

15:00-15:15 : **Multi-Axis Compensation Strategy for Achieving Velocity Vector Roll**
Kapil Sachan (CSIR National Aerospace Laboratories, India); Guruganesh R (CSIR National Aerospace Laboratories, India); Jayalakshmi M (Aeronautical Development Agency, India)

15:15-15:30 : **Robust Stability Analysis of 2-D Dynamical Systems for Applications in Automation and Astronomy**
Rishi Nigam (National Institute of Technology Uttarakhand, India); Rahul Prakash (National Institute of Technology Uttarakhand, India); Siva Kumar Tadepalli (National Institute of Technology Uttarakhand, India)

15:30-15:55 : **Stability Analysis, Testing and Realization of a Floating Target**
Rajib Kumar Das (Integrated Test Range, India); Milan Pal (FM University, India)

## OS34 (SIW/Vivaldi/Spiral Antennas) Time , 14:00 - 16:00 hrs

| Location | Tulip | Chaired by | Koushik Dutta (West Bengal University of Technology & Netaji Subhash Engineering College, India) |
|---|---|---|---|

14:00-14:15 : **A Novel Wideband Complementary SIW Backed Edged Spiral Antenna for Radio Telescope Applications**
Suryansh Saxena (Jaypee Institute of Information Technology, India); Nidhi Tewari (Jaypee Institute of Information and Technology, India); Abhay Kumar (Jaypee Institute of Information Technology Noida, India); Shweta Srivastava (Jaypee Institute of Information Technology, India)

14:15-14:30 : **High Gain Wideband 2×8 SIW-Based Antenna Array for Futuristic 6G Applications at W-Band**
Karthik Gugulothu (Indian Institute of Technology (ISM) Dhanbad, India); Amit Kr. Pandey (IIT ISM Dhanbad, India); Akash Deep Singh (IIT ISM Dhanbad, India); Kundan Suman (IIT ISM, India); Ravi Kumar Gangwar (IIT ISM Dhanbad, India)

14:30-14:45 : **Low RCS Vivaldi Antenna (1GHz-18GHz) for Electronic Warfare Applications**
Najma K. (CSIR-National Aerospace Laboratories, Bangalore, India); Subhanya C. P. (CSIR-National Aerospace Laboratories, Bangalore, India); Vineetha Joy (CSIR-National Aerospace Laboratories, India); Hema Singh (CSIR-National Aerospace Laboratories, Bangalore, India)

14:45-15:00 : **Design of L-Band Metal Type Vivaldi Antenna Array**
Vismitha Pramod (Engineer Contract, India); Shahla K P (Scientist, India); Shahul Hameed V (Scientist, India); Chinni Prabhunath G (None, India)

15:00-15:15 : **EM Design and Performance Analysis of Cavity-Backed Archimedean Spiral Antenna (2-18 GHz)**
Shrikrishan Baghel (CSIR-National Aerospace Laboratories, India); Abhina Manoj K. (CSIR-NAL, Bangalore, India); Christy Aby Prasad (CSIR-National Aerospace Laboratories, Bangalore, India); Vineetha Joy (CSIR-National Aerospace Laboratories, India); Hema Singh (CSIR-National Aerospace Laboratories, Bangalore, India)

15:15-15:30 : **Optimizing the Design of an Ant-Shaped Millimeter-Wave Antenna for Broadband Applications: 9 to 100 GHz**
Manish Varun Yadav (Manipal Institute of Technology, Manipal Academy of Higher Education, Manipal, Karnataka, India); Lanston Pramith Fernandes (Manipal Institute of Technology, Manipal Academy of Higher Education, Manipal, India); HARSHITHA M (Manipal Institute of Technology, Manipal Academy of Higher Education, Manipal, India); Swati Varun Yadav (Manipal Institute of Technology, Manipal Academy of Higher Education, Manipal, India)

15:30-15:45 : **Ka-Band Hemispherical Dielectric Lens and Horn Assembly for Discrete Beamforming**
Shahla K P (Scientist, India); Shahul Hameed V (Scientist, India); Vismitha Pramod (Engineer Contract, India); Chinni Prabhunath G (None, India)

## OS35 (Filters & Passive Microwave Devices) Time , 14:00 - 16:00 hrs

| Location | Hibiscus 1 | Chaired by | Hema Singh (CSIR-National Aerospace Laboratories, Bangalore, India) |
|---|---|---|---|

14:00-14:15 : **Design of Split Ring Resonator for EM Waves Absorbes and Stop Band Filters in Aerial Applications**
Bharti Gajendra (Integrated Test Range, India); Pravakar Mallick (Integrated Test Range, Chandipur & Balasore, Odisha, India); Milan Pal (FM University, India)

14:15-14:30 : **Design of Wide Bandwidth Filter at S-Band for Spacecraft Testing Applications**
Abhilasha Agarwal (UR Rao Satellite Center, Indian Space Research Organisation,India, India); Raja Sharma (UR Rao Satellite Center, Indian Space Research Organisation, India); Viswanadha Srivani (UR Rao Satellite Center, Indian Space Research Organisation, India); MD. Tosicul Wara (UR Rao Satellite Center, Indian Space Research Organisation, India)

14:30-14:45 : **Improved Clutter Correction Technique Using Recursive Comb Notch FIR Filter**
Anindya Ghosh (BGSW, India); Debashish Chakravorty (IIT Kharagpur, India); Ajay Chakraborty (Techno India University, India)

14:45-15:00 : **Compact C Band High Rejection Cavity Bandpass Filter**
Shashank Soi (DRDO, India); Sushil Singh (Defence Electronics Applications Laboratory, India); Rajendra Singh (SCIENTIST, India)

15:00-15:15 : **Small Scale Bandpass Filter Having Wide Rejection Bandwidth**
Dilip Kumar Choudhary (Vellore Institute of Technology, India)

15:15-15:30 : **Coupled Line Wide Stop Band Diplexer Using Stepped Impedance Resonator**
Anindya Ghosh (BGSW, India); Debashish Chakravorty (IIT Kharagpur, India); Ajay Chakraborty (Techno India University, India)

15:30-15:45 : **Design of Microwave Sensor for CFRP Coating Thickness Measurement Using Odd Mode Electric Coupling Cavity Aperture**
Fateh Lohar (Visvesvaraya National Institute of Technology Nagpur Nagpur, India); Neeraj Rao (Visvesvaraya National Institute of Technology Nagpur, Maharashtra & Ministry of Human Resource and Development, India)

15:45-16:00 : **Design of Coaxial Cavity Duplexer for Space Applications**
Vaishnavi Bhope (ANSYS SOFTWARE PVT. LTD., India); Sharon Varghese (Ansys Software Pvt. Ltd., India); Nijas Cm (Ansys Software Pvt Ltd & Ansys, India)

## OS36 (System Reliability & QA) Time , 14:00 - 16:00 hrs

| Location | Hibiscus 2 | Chaired by | Prakash Rao PJVKS (URSC, India) |
|---|---|---|---|

14:00-14:15 : **Reliability Modelling of Complex Satellite Transmitter System With Common Element and Shared Redundancy Using Markov Chain**

Akshaya Kumar Sahu (Space Applications Centre (ISRO), India, India); Satya Priya Mittal (Space Applications Centre (ISRO), India); Manish Mehta (Space Applications Centre (ISRO), India); Shilpa Pandya (Space Applications Centre (ISRO), India)

14:15-14:30 : **Quality Compliance of HDI PCBs for Space Use**

Praveen Jha (Space Applications Centre (ISRO), India, India); Mukesh Kumar Patel (Space Applications Centre (ISRO), India, India); Rajeev Kumar (Space Applications Centre (ISRO), India, India); Ravindra K Hegde (Space Applications Centre ISRO, India); Shilpa Pandya (Space Applications Centre (ISRO), India)

14:30-14:45 : **Software Complexity Measurement for Flight Software**

Savitha A (India); Pushpavathi T. P Pushpavathi (Pushpavathitp, India); Yogesh Kr (URSC Bangalore, India); Prasanna Kumar (RQSG, India)

14:45-15:00 : **Quality Assurance in the Development of Indigenous AEWC System**

Annapurna Sogunuru (CABS, India); Gokul Depuk TP (CABS, India); Gracy Philip (CEMILAC, India); K Rajalakshmi Menon (CABS, India)

15:00-15:15 : **Reliability Analysis of Satellite Data Reception System**

Sridevi Ch (ISRO, India); Shailender Kumar SP (ISRO, India); Chalapathi Rao A (ISRO, India); Aparna N (ISRO, India)

15:15-15:30 : **NSGA II Pareto Optimal Solutions for Antenna Locations on a Commuter Aircraft**

Veena Haridas (CSIR-National Aerospace Laboratories, India); Vaitheeswaran M (National Aerospace Laboratories, India); Prathiksha M V (CSIR National Aerospace Laboratori es, India)

15:30-15:45 : **Integrated Quality Management System Aligning System Engineering With Aerospace Standard AS9100D 2016**

GRACY PHILIP (CABS, India); Gokul Depuk TP (CABS, India); Rakesh Raikwar (CABS, India); K Rajalakshmi Menon (CABS, India)

## OS37 (Ground Support Technologies) Time , 16:30 - 18:30 hrs

| Location | Petunia | Chaired by | V V Srinivasan (ISTRAC, India) |
|---|---|---|---|

16:30-16:45 : **Spacecraft Operations Automation: Software Solutions for Ground Segment**
Anuj Nogja (MCF, ISRO, India); Manish Kumar (MCF, ISRO, India)

16:45-17:00 : **The Strategic Role of ISRO's Polar Ground Station in Space Data Acquisition and Global Collaboration**
Chinmay Kumar Patra (Space Applications Centre & Indian Space Research Organisation, India); Sahal Mohammed M. N. (ISRO Telemtery Tracking and Command Network, India); Sudhakar Kandukuri (National Remote Sensing Centre, India)

17:00-17:15 : **Automating Ground System Using Baseband Monitoring and Control Software (BMCS)**
Jitendra Kumar Kapse (MCF ISRO, India); Ashfaque K P (MCF, ISRO, India); Surendra C (MCF, ISRO, India)

17:15-17:30 : **Efficient Utilization of Single Ku Band Ground Terminal for Co-Located Satellites TTC Operation**
Hridesh Kumar (ISRO, India); Deepak Kumar (ISRO, India); Shraddha Gupta (ISRO, India); Javed S A R Qureishi (ISRO, India)

17:30-17:45 : **Statistical Size Estimation of Solid Stage Debris Ejected During Satellite Launch Vehicle From Ground Based Active Phased Array Radar Observations**
Vaidhyanathan A (Scientist, India); Aditya Sarkar (Scientist, India); Sravan Kumar Venepally (Satish Dhawan Space Center, Sriharikota, India); Rajkumar S (Scientist, India)

17:45-18:00 : **Advancing Deep Space Mission Orbit Determination: A Novel Approach for Doppler Data Collection and Processing**
Bijoy Kumar Dai (ISRO, India); Manikantan Ramdas (ISTRAC, India); Nandini Harinath (ISTRAC, India); Sheli Sinha Chaudhuri (Jadavpur University, India)

18:00-18:15 : **Enhancement of Space Link Extension (SLE) Provider Software for Return Channel Frame (RCF) Service**
Divyang Arora (Indian Space Research Organization, India); Md. Adnan (Indian Space Research Organization, India); M. Parvathi Devi (Indian Space Research Organization, India); S Santhalakshmi (Indian Space Research Organization, India)

18:15-18:30 : **Incorporation of Automation Modalities Into SAR Data Processing Operations to Expedite and Enhance Problem Resolution**
Jayasri V Poludasu (National Remote Sensing Centre, India); Samvram Sahu (National Remote Sensing Center, ISRO, India); Niharika Karumuri (ISRO, NRSC, India); Aakashneel Basak (NRSC, ISRO, India); Ramu Yerukala (NRSC, ISRO, India); H. S. V. Usha Sundari Ryali (ISRO, NRSC, India); Sarma Manju (NRSC, India)

## OS38 (Radar Technologies-II) Time , 16:30 - 18:30 hrs

| Location | Poinsettia 1 | Chaired by | Anil Kumar Singh (LRDE, India) |
|---|---|---|---|

16:30-16:45 : **Miniaturized Reconfigurable Frequency Synthesizer Module for MiniSAR Airborne Mission**
Nilesh Makwana (Space Applications Centre, ISRO, India); Shruti Sinha (SAC, ISRO Ahmedabad, India); MOHIT KUMAR (SAC, ISRO, India); Jolly Dhar (Space Applications Centre, ISRO, India); Cvn Rao (Space Applications Centre (ISRO), India)

16:45-17:00 : **Multi-Channel Data Acquisition and Digital Beam Forming System for Space-Borne Sweep SAR Mission**
Shalini Gangele (Space Applications Centre, ISRO, India); Vipin Prajapati (Space Application Centre ISRO, India); Samrat Sinha (SAC, ISRO, India); Rinku Atulkumar Agrawal (Space Application Centre ISRO, India); Himanshu Patel (Indian Space Research Organisation (ISRO), India); Vikas Singh (Indian Space Research Organisation, India); Saravana B Kumar (Indian Space Research Organisation, India); Cvn Rao (Space Applications Centre (ISRO), India)

17:00-17:15 : **NovaSAR-Automated Data Processing for Geometric Correction and Radiometric Terrain Normalization for Analysis Ready Data**
HariPriya Saketapuram (Indian Space Research Organization & NATIONAL REMOTE SENSING CENTRE, India); Samvram Sahu (National Remote Sensing Center, ISRO, India); Usha Hsv (ISRO, India); Sarma Manju (NRSC, India); Prakash Chauhan (NRSC, ISRO, India)

17:15-17:30 : **Development of Intelligence Software for GPR Investigation of Buried Object**
Sangeeta Tarai (National Institute of Technology, Rourkela, India); Swarna Panda (National Institute of Technology, Rourkela, India); Buddepu Santhosh Kumar (National Institute of Technology, Rourkela, India); Ajit Sahoo (NIT Rourkela, India); Subrata Maiti (National Institute of Technology, Rourkela, India)

17:30-17:45 : **Chebyshev-Amplitude Distribution in X/Ku-Band Shared Aperture Antenna Array With Open, Short, and**
Load-Ended Series Feed for Airborne Synthetic Aperture Radar Applications
Venkata Kishore Kothapudi (Vignan's Foundation for Science Technology and Research, India); Kati Praveena (Vignan's Foundation for Science, Technology and Research, India)

17:45-18:00 : **Classification of Ground Penetrating Radar Data Using YOLOv8 Model**
Pramod Goyal (NIT Rourkela, India); Sangeeta Tarai (National Institute of Technology, Rourkela, India); Subrata Maiti (National Institute of Technology, Rourkela, India); Prasun Chongder (NIT Rourkela, India)

18:00-18:15 : **Gain Enhanced Linear Rectangular Dielectric Resonator Antenna Array for RADAR Applications**
Mohith N Raate (R V College of Engineering, India); Amogh G (RV College of Engineering, India); Shushrutha K S (RVCE Bangalore, India)

18:15-18:30 : **Modeling of mmWave FMCW Radar System for 2D SAR Imaging**
handra Wadde (SRM University AP, India); Rajesh Shankar Karvande (DRDO, India); Rupesh Kumar (SRM University AP, India)

## OS39 (Communication Technologies-II) Time , 16:30 - 18:30 hrs

| Location | Poinsettia 2 | Chaired by | Aloknath De (Samsung, India) |
|---|---|---|---|

16:30-16:47 : **Efficient FPGA Implementation of SISO-OTFS Modem for Aircraft Communications in High-Doppler Scenarios**
Md Asfani (Central Research Laboratory, India); Sapta Girish Babu Neelam (Indian Institute of Technology Bhubaneswar & Bharat Electronics Limited, India)

16:47-17:04 : **Novel Architecture for Communication Channelizer**
POONAM PANCHAL (Defence Electronics Application Laboratory, India); Gaurav Kapur (Defence Research Development Organization, India)

17:04-17:21 : **Chirp Orbital Angular Momentum Beams for Robust Communications in Adverse Propagation Conditions**
Ravi Kadlimatti (Birla Institute of Technology and Sciences, Pilani, India); Farhana Firdous (BITS-PILANI KK BIRLA GOA CAMPUS, India)

17:21-17:38 : **Model-Based Design for Solid State RF Power Transmitters for OFDM Applications**
Ravi Dheeravath (MathWorks India Pvt ltd, India); Sourabh Mukund Joshi (MathWorks India Private Limited, India); Shashank Kulkarni (MathWorks India Private Limited, India); Abhishek Tiwari (Mathworks India Private Limited, India)

17:38-17:55 : **Receiver Support Performed Congestion Control for TCP Over Lossy Links**
Satendra Kumar Yadav (DEAL, India); Tulip Kumar Toppo (RCI, India); Sugata Gangopadhyay (Indian Institute of Technology Roorkee, India)

17:55-18:12 : **Over-The-Air Phased Array Antenna Calibration Performance Validation and Comparison: An Experimental Approach**
Anik Saha (Space Applications Centre, India); Shiv Shankar Pareek (ISRO & Space Applications Centre, India); Jatin Trivedi (Space Applications Centre, India); Rakesh Vyas (Space Applications Centre, India)

18:12-18:29 : **Band Grouping: Leveraging Spectral Correlation for Improved HSI Processing**
Sadia Hussain (IIT Delhi, India); Brejesh Lall (Indian Institute of Technology Delhi, India)

## **OS40** (Special Session on AI/ML Technologies for SPACE-V) Time , 16:30 - 18:30 hrs

| Location | Heliconia 1 | Chaired by | Brahmjit Singh<br>(National Institute of Technology Kurukshetra, India) |
|---|---|---|---|

16:30-16:45 : **Dynamic Stability-Driven Torque Control and Trajectory Planning for a FFSM Using PINNs**
Urvi Haval (MIT WPU, India); Ananya A Mallik (MIT WPU & SoECE, India); Sumitra Narayan Motade (Dr Vishwanath Karad MIT World Peace University & MIT-WPU Pune, India)

16:45-17:00 : **Preliminary Analysis of mmWave SAR Model and Machine Learning Approach**
Rupesh Kumar (SRM University AP, India); Chandra Wadde (SRM University AP, India); Gayatri Routhu (SRM University AP, India); Rajesh Shankar Karvande (DRDO, India)

17:00-17:15 : **Generation of Automatic Spectral Classification Map Using Clustering at the South Pole-Aitken Basin on the Moon**
aisei Shibakura (University of Aizu, Japan); Yohiko Ogawa (University of Aizu, Japan); Uday Kiran Kiran Rage (The University of Aizu & NICT, Japan); Makiko Ohtake (University of Aizu, Japan)

17:15-17:30 : **Securing Industrial IoT Networks Using Conv2D-Attention Approach With Softmax Classifier**
Bhavya Bhola (Indian Institute of Information Technology, Sri City Andhra Pradesh India, India); Ayan Raza (Indian Institute of Information Technology Sri City Andhra Pradesh India, India); Rajeev Kumar (Indian Institute of Information Technology, Sri City Andhra Pradesh India, India)

17:30-17:45 : **rasterMiner: An Open-Source Python Library to Discover Knowledge From Raster Imagery Data**
Veena Pamalla (The University of Aizu, Japan); Uday Kiran Kiran Rage (The University of Aizu & NICT, Japan); Yohiko Ogawa (University of Aizu, Japan); Makiko Ohtake (University of Aizu, Japan)

17:45-18:00 : **Estimating Actual Size of Missile on Air Using Object Detection Algorithm**
Thenmozhi M (SRM Institute of Science and Technology, India); Fancy C (SRM Institute of Science and Technology, India); S. Haaniya Iram (SRM Institute of Science and Technology, India)

## OS41 (Technology Compendium & TWTs Related Technologies) Time , 16:30 - 18:30 hrs

| Location | Heliconia 2 | Chaired by | Sri Pramod V. B. , URSC |
|---|---|---|---|

16:30-16:45 : **Technology Development for Validation and Update of Aerodynamic Database of Aircraft Using System Identification Techniques**
Dushyant Kaliyari (CSIR-National Aerospace Laboratories, India); Khadeeja Nusrath TK (CSIR-National Aerospace Laboratories, India); Jatinder Singh (CSIR-National Aerospace Laboratories, India); Vijay V Patel (Aeronautical Development Agency, India); Amitabh Saraf (Aeronautical Development Agency, India)

16:45-17:00 : **A Planar Microstrip Line Based Compact Ultra Broadband Power Divider / Combiner**
Pankaj Sandip Bhavsar (Space Applications Centre, Indian Space Research Organization & Indian Institute of Technology, Bombay, India); Cvn Rao (Space Applications Centre (ISRO), India); Punam Tyagi (Space Applications Centre, India); Rajkumar Arora (Space Applications Centre, India)

17:00-17:15 : **Technology Development of Helix-TWTs of Different Bands at CSIR-CEERI for Strategic Applications**
Amitavo Choudhury (CSIR-CEERI Pilani, India); Chirag Prakashchandra Mistry (CSIR-Central Electronics Engineering Research Institute, Pilani, Rajsthan, India); Subhradeep Chakraborty (CSIRCEERI, Pilani, India); Sanjay Ghosh (Senior Principle Scientist, India)

17:15-17:30 : **Design and Development of Ultra-Wideband Transceiver's Functional Blocks MMICs Using GaN Technology**
Ashish Jindal (DRDO & IIT Delhi, India)

17:30-17:45 : **Design of the Radiation Cooled Packaging of the Helix TWT**
Chirag Prakashchandra Mistry (CSIR-Central Electronics Engineering Research Institute, Pilani, Rajsthan, India); Amitavo Choudhury (CSIR-CEERI Pilani, India); Subhradeep Chakraborty (CSIRCEERI, Pilani, India); Sanjay Ghosh (Senior Principle Scientist, India)

17:45-18:00 : **Surface Treatment of Heat Sink Fins Made of Aluminium Alloy Used for Thermal Management of Travelling Wave Tube Amplifiers**
Himanshu Shukla (Space Application Centre, SAC-ISRO, India); Sharad Shukla (Space Application Centre SAC ISRO, India); Vimal Shah (Space Application Centre SAC ISRO, India)

18:00-18:15 : **MINEGUARDIAN: IoT Enabled Advanced Sensor Integration for Mine Safety Enhancement**
Meharunissa S P (Dayananda Sagar College of Engineering, India); Sathvik Lokesh (Dayananda Sagar College of Engineering, India); Aniruddh P Koundinya (P E S College of Engineering, Mandya, India); Aditi Kulkarni (Dayananda Sagar College of Engineering, India); Karan Karan C K (Dayananda Sagar College of Engineering, India)

18:15: 18:30 **Side Lobe Reduction of Time Modulated Elliptical Antenna Array Using GA and PSO Algorithm**
Satish Kumar (National Institute of Technology Durgapur, India); Gopi Ram (National Institute of Technology, Warangal, India); Durbadal Mandal (National Institute of Technology, Durgapur, India); Rajib Kar (National Institute of Technology, Durgapur, India)

## OS42 (Technologies for CAN/CubeSat) Time , 16:30 - 18:30 hrs

| Location | Tulip | Chaired by | Sudarshan Patil Kulkarni (JSS Science and Technology University, Mysuru, India) |
|---|---|---|---|

16:30-16:45 : **CanSat Deployment: Electrothermal and Electromechanical Methods**

K Raghav, Mr (Dayanand Sagar University, India); G N V Prasad (Dayananda Sagar University, India); Sripad Kulkarni (Dayananda Sagar University, India); Yashas V (Dayananda Sagar University, India)

16:45-17:00 : **Design and Development of a Functional CANSAT Model for Atmospheric Data Collection**

Maelona Maxim Vas (National Insitute of Engineering, India); Shriranjani A (The National Institute of Engineering, India); Nishchith B C (The National Institute of Engineering, India); Rajalekshmi Kishore (The National Institute of Engineering, India); Salila Hegde (The National Institute of Engineering, India)

17:00-17:15 : **Level - 1 Digitally Twinned 1U Cubesat (DT1UC) - Concept to Reality**

Prashantha Kumar (Dayananda Sagar University, India); Sripad Kulkarni (Dayananda Sagar University, India); Vatsal Amrania (Dayananda Sagar University, India); Krish Agrawal (DSU, India); Ashvani Chaudhary (Dayananda Sagar University, India); Jaiman Khandelwal (DSU, India)

17:15-17:30 : **Ground Level Studies: Triad Spectroscopy Interface for the Jnanam CubeSat**

Sudarshan Patil Kulkarni (JSS Science and Technology University, Mysuru, India); Jayakumar Venkatesan (Valles Marineris International Pvt Ltd, India); Gowthamarajan Kuppusamy (JSS Pharmaceutical College, Ooty, India); Anshad P A (JSS Science and Technology University, Mysuru, India); Dasangam Gnaneswar (JSS Science and Technology University, Mysuru, India); Jey Kumar Pachiyappan (JSS College of Pharmacy, India); Jeyaprakash M R (JSS College of Pharmacy, Ooty, India); Veera Venkata Satyanarayana Reddy Karri (JSS College of Pharmacy, Ooty, India); Parikshit Roychowdhury (JSS College of Pharmacy, Ooty, India)

17:30-17:45 : **Advancements in Defense Surveillance: Integrating Deep Learning and Enhanced Materials in CubeSAT Systems**

Abhay Bhandarkar (Ramaiah Institute of Technology, India); Riddhi Rai (Ramaiah Institute of Technology, India); Sushma B (Ramaiah Institute of Technology & Visvesvaraya Technological University, India)

17:45-18:00 : **KLSAT -A Mission Assisted for Study of Atmospheric Parameters at Stratosphere**

Kolachalam Sai Charan (KL UNIVERSITY INDIA, India); Puvvada Adithya (K L University, India); Velisala Prudhvi Gopal (K L University, India); Vanga Srivarun Reddy (K L University, India); Sarat Kotamraju (K L University, India); Sri Kavya K. Ch. (K L University, India)

## **OS43** (SPACE-OLS) Time , 16:30 - 18:30 hrs

| Location | Hibiscus 2 | Chaired by | Dr. Mahesh A., RVCE |
|---|---|---|---|

16:30-16:45 : **Generating Mode 2 OAM Beam Using a Circular Leaky-Wave Antenna on a Corrugated Half-Mode SIW With Beam-Scanning**

Aakash Bansal (Loughborough University, United Kingdom (Great Britain)); William Whittow (Loughborough University, United Kingdom (Great Britain))

16:45-17:00 : **Holographic Metasurface Design for Flexible Beamforming Antennas**

Praveen Kumar Sharma (Seoul National University of Science and Technology, Korea (South)); Aakash Bansal (Loughborough University, United Kingdom (Great Britain)); Jae-Young Chung (Seoul National University of Science and Technology, Korea (South))

17:00-17:15 : **Analytical and Experimental Study of Fabrication Process Induced Stress on Pull-In Behaviour of Fixed-Fixed Beam RF-MEMS Switches**

Ashish Chauhan (SCL, India); Ayan Karmakar (Semi-Conductor Laboratory(SCL), Chandigarh, India); Kamaljeet Singh (Semi-Conductor Laboratory, India)

17:15-17:30 : **Controller Design for High Gain Converters Having Non-Minimum Phase Issues**

Preeti Sharma (BITS Pilani, India)

17:30-17:45 : **A Hybrid Deep Learning Model for Intrusion Detection in Aerospace Vehicles**

Akshat Gaurav (Ronin Institute, USA); Brij B. Gupta (Asia University, Taiwan); Kwok Tai Chui (Hong Kong Metropolitan University, Hong Kong)

17:45-18:00 : **Resistively Loaded Cavity-Backed Spiral Antenna for Optimal Antenna-Plasma Coupling in Tokamaks**

Dimple Yadav (Banasthali Vidyapith, India); vaishali singh (Banasthali Vidyapith, India); Tiwari Poonam (Banasthali Vidyapith, India); Meenu Kaushik (Banasthali Vidyapith, India); Anshuman Shastri (Banasthali Vidyapith, India); Raj Singh (IPR Gandhinagar, India); Vishant Gahlaut (Banasthali Vidyapith, India)

# NOTES

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