

# **2024 IEEE Space, Aerospace and Defence Conference (SPACE 2024)**

**Bangalore, India  
22-23 July 2024**

**Pages 1-617**



**IEEE Catalog Number: CFP24VN1-POD  
ISBN: 979-8-3503-6739-3**

**Copyright © 2024 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP24VN1-POD
ISBN (Print-On-Demand):	979-8-3503-6739-3
ISBN (Online):	979-8-3503-6738-6

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# 2024 IEEE Space, Aerospace and Defence Conference (SPACE)

## Radar Technologies-I

<i>Analysis of Bowtie Antenna for GPR Applications Using Method of Moments</i> Ananya Dey (IIT Kharagpur & Institute of Radio Physics and Electronics, University of Calcutta, India), Amitabha Bhattacharya (IIT Kharagpur, India) .....	1
<i>X-Band Aperture Coupled Slotted Waveguide Array for Side Looking Airborne Radar</i> Glorious Raj (CABS Defence Research Development Organization, India), Nitin Kumar (Defence Research Development Organization, India), Ramkumar Raghu (Indian Institute of Science, India), R Rajesh (Center of Airborne Systems, DRDO, India) .....	5
<i>Drone Based Dynamic Radar Cross-Section (RCS) Measurement Technology</i> Anil Kumar Chepala (Defence Research and Development Organization, India), Srikanth Kota (NSTL, India), Sumanth Polimera (NSTL, India) .....	10
<i>Experimental Ground Penetrating Radar Using Vector Network Analyzer</i> 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
<i>Cost-Effective Solutions for Beamforming in Miniaturized S-Band Radar Applications</i> Amogh G (RV College of Engineering, India), Bhuvan Bharadwaj (RVCE, India), Dheeraj G (R V College of Engineering, India), Koyram Sathyanarayana Shushrutha (RVCE, India) .....	19
<i>Centralized Multi Sensor Data Fusion Scheme for Airborne Radar and IFF</i> Abhishek Kumar (DRDO, India), A Muthukumar (CABS, India), R Rajesh (CABS, India) .....	24

## SATCOM Technologies

<i>Vehicle Motion Emulation for SOTM Test Facility</i> Ushma Vineet Dad (Space Applications Centre, ISRO, India), Siddhant Jain (ISRO, India), Kapil Sharma (Space Applications Centre, India), Sudhir Agarwal (Space Applications Centre, India) .....	28
<i>A Compact E-Plane Sectoral Waveguide Power Combiner for Ku Band SATCOM Applications</i> Manoj Kumar (Indian Institute of Technology Roorkee, India), Gowrish Basavarajappa (Indian Institute of Technology Roorkee, India) .....	32
<i>SATCOM Based Learning Management System</i> Dhruvit Chaniyara (Indian Space Research Organisation, India), Rahul Sharma (Indian Space Research Organisation, India) .....	36
<i>Multi Gigabit Digital Modulator for Satellite Implemented Based on JESD204B Protocol</i> Priyanka Das (Indian Space Research Organization, India), Yogesh Kr (URSC Bangalore, India), Ramalakshmi N (ISRO, India) .....	40
<i>Leveraging mmWave Channel Coding for Enhanced Reliability in 6G High-Throughput Satellite Communications</i> Ambar Bajpai (GITAM University, Bengaluru & IEEE Bangalore Section, India), Nagarjuna Telagam (GITAM University, India) .....	44
<i>Performance Analysis of High Mobility Spatially Correlated MIMO-OTSM Systems for Aerospace and Defence Networks</i> Sapta Girish Babu Neelam (Indian Institute of Technology Bhubaneswar & Bharat Electronics Limited, India) .....	48
<i>A High Frequency Millimeter Wave Circular Patch Antenna for Radar Applications and Satellite Communications</i> 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) .....	52

## Cyber Security/Computing/IT/SE

<i>Development of a Critical System Using a Domain Specific Language</i> 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) .....	56
<i>Senspy: An Integrated Network Monitoring and Anomaly Detection System Using Machine Learning</i> 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) .....	61
<i>Clustering of Application Behaviors in Windows Environments</i> Dyutisri Kolli (Defence Institute of Advanced Technology, India), Deepti Vidyarthi (Defence Institute of Advanced Technology, India) .....	66

#### *CNN Based Haze Removal for Aerospace and UAV Applications*

Padmadarsan S (APJ Abdul Kalam Technological University & College of Engineering Trivandrum, Thiruvananthapuram, Kerala, India), Karunnya Biju (College of Engineering Trivandrum, India) .....	71
---	----

#### *Transforming Wildlife Conservation With AI Integrated Daring 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) .....	75
--	----

#### *Unsupervised Feature Selection for Characterizing Airplane Subsystem Behavior*

Aditi Goswami (Boeing, India) .....	79
-------------------------------------	----

## Power/Energy/Power Electronics

#### *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), Geetha Krishnan C. (Indian Space Research Organisation, India), RV Nadagouda (Indian Space Research Organisation, India) .....	83
--	----

#### *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) .....	88
---	----

#### *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) .....	93
--	----

#### *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) .....	98
--	----

#### *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) .....	103
---	-----

#### *Design and Realization of Programmable Electronic Load for Aerospace Vehicle Testing*

Kamlesh Kumar (ASL HYDERABAD, DRDO, India) .....	108
--	-----

## Special Session on AI/ML Technologies for SPACE-I

#### *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) .....	112
---	-----

#### *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) .....	116
---	-----

#### *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) .....	120
---	-----

#### *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) .....	124
---	-----

#### *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) .....	128
---	-----

#### *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) .....	132
---	-----

#### *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), Tarjini Vyas (Nirma University, India), Shivani Desai (Institute of Technology Nirma University, India), Sudeep Tanwar (Nirma University & Institute of Technology, India) .....	136
---	-----

#### *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) .....	140
--	-----

# Data/Image/Signal Processing-I

<i>Spacecraft Payload Data Processing With In-Memory Concurrent Threads and Data Buffers</i>	
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) .....	144
<i>Advancements in Launch Vehicle Acoustic Monitoring: A One-Third Octave Processing Algorithm</i>	
Rekhanshi Varma (Vikram Sarabhai Space Center, Indian Space Research Organization (ISRO), India), Deepu Roy (Scientist, India), Vidya B (VSSC, India), Nandkishor MM (Vikram Sarabhai Space Center, Indian Space Research Organization (ISRO), India), Finitha C (VSSC, India) .....	148
<i>WANI - A Text-To-Speech Model for Indian Languages and Beyond for Aerospace Applications</i>	
Amresh Kumar (DRDO, India), Harshil Gupta (DRDO, India), TM Dhipu (Center of Airborne Systems, DRDO, India), Ramachandran Rajesh (DRDO, India) .....	152
<i>High SNR Camera Electronics for Ocean Imaging</i>	
Pradeep Soni (Space Applications Centre, ISRO, Ahmedabad, India), Ashok Kumar (Space Application Centre & ISRO, India), Nilesh B Singal (Space Applications Centre 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) .....	156
<i>Predictive Model for Enhancing Water Quality Monitoring Leveraging Satellite Data</i>	
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) .....	161
<i>Military Based Object Detection in Satellite Imagery by Optimising YOLOv8</i>	
Swati Singh (Indian Institute of Science, India), Rathna G N (Indian Institute of Science, Bangalore, India) .....	165
<i>Recent Advances in Urban Expansion Monitoring Through Deep Learning-Based Semantic Change Detection Techniques From Satellite Imagery</i>	
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) .....	169
<i>A Walkthrough to Airborne Acoustic Source's Hidden Patterns in Lower and Higher Dimensional Space</i>	
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) .....	174

# Embedded System/Semiconductor/VLSI Technologies

<i>A Comparison of CMOS and Bi-CMOS Semiconductor Technology for Miniaturized PLL Chip Performance for High Frequency Synthesizers</i>	
Pankaj Sandip Bhavsar (SpaceApplicationCentre, IndianSpaceResearchOrganization & 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) .....	178
<i>Design and Realization of RFSoc FPGA Based Multi-Channel Data Acquisition &amp; Digital Beam Former System</i>	
Chinni Prabhunath G (None, India), Shahul Hameed V (Scientist, India) .....	182
<i>Embedded Data Acquisition and Command Simulator for SAIS Receiver Ground Testing</i>	
Gaurangi Sahay (Indian Space Research Organisation, India), Hemanth Reddy N (Indian Space Research Organisation, India), Yogesh Kr (URSC Bangalore, India), Ramalakshmi N (ISRO, India) .....	186
<i>Morphological Galaxy Classification Using Convolutional Neural Networks on FPGA</i>	
Rahul Barnwal (IIIT Kottayam, India), Kala S (Indian Institute of Information Technology Kottayam, India) .....	190
<i>TinyML-On-The-Fly: Real-Time Low-Power and Low-Cost MCU-Embedded On-Device Computer Vision for Aerial Image Classification</i>	
Riya Samanta (Indian Institute of Technology, Kharagpur, India), Bidyut Saha (Indian Institute of Technology Kharagpur, India), Soumya Ghosh (Indian Institute of Technology Kharagpur, India) .....	194
<i>Effects of Package Parameter on Millimeter Wave (Ka-Band) Exotic IMPATT Oscillators</i>	
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 (Professor, India) .....	199
<i>FPGA Based Variable Scan Rate Generic Stepper Motor Drive Algorithm for mm-Wave Sounder Payloads</i>	
Rahul Kumar 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) .....	203
<i>Design and Implementation of Equivalent Time Sampling Scheme on FPGA for Impulse GPR</i>	
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) .....	207

# Mission Planning/Control & Guidance-I

<i>Formal Verification of Voting Algorithms for Safety Critical Systems Using Two Approaches</i>	
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)	211
<i>Minimal Energy Flight Trajectory Planning Towards a Moving Target</i>	
Dilip Krishnaswamy (Centre for Development of Telematics, India), Maalini Krishna (Cornell University, USA)	216
<i>Exploring the Dyson Ring: Parameters, Stability and Helical Orbit</i>	
Teerth Raval (Indian Institute of Technology Hyderabad, India), Dhruv Srikanth (Indian Institute of Technology Hyderabad, India)	221
<i>Designing A Federated Learning Satellite System to Incentivize Space Situational Awareness and Mitigate Space Debris</i>	
Gourav Mohanan (Dayananda Sagar University, India), Sathiganahally 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)	226
<i>Aol-Aware Deep Reinforcement Learning Based UAV Path Planning for Defence Applications</i>	
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)	230
<i>Geosynchronous Satellite Pattern-Of-Life Characterization Through Machine Learning-Based Mode Change Detection and Classification</i>	
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)	235
<i>High Accuracy Analysis of NavIC Static Kinematic Performance</i>	
Somnath Mahato (India Meteorological Department, India), Anijit Anjan (India Meteorological Department, India), Ks Hosalikar (India Meteorological Department, India), Mrutyunjay Mohapatra (India Meteorological Department, India)	240
<i>Performance Prediction of Antenna Control Servo System Based on LSTM Network</i>	
Nishank Satish (Dayananda Sagar College of Engineering, India), Sajith Menon (Indian Space Research Organization, India), Divyang Arora (Indian Space Research Organization, India), M. Parvathi Devi (Indian Space Research Organization, India), S Santhalakshmi (Indian Space Research Organization, India)	244

# SPACE Antennas-I

<i>Realisation of Digitised Airborne AESA Through Multi Channel Receiver</i>	
Karthik Bodaballa (Centre for Airborne Systems DRDO, India), Bhupendra Kumar (Centre for Airborne Systems DRDO, India)	248
<i>High Gain Fabry-Perot Cavity Antenna Using Single Layered Partially Reflective Surface</i>	
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)	252
<i>Compact Flexible SRR-Based WBAN Antenna Using PDMS Substrate for Military Personnel Remote Health Monitoring</i>	
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)	255
<i>Multiple Beamforming Planar Antenna Array With Broadside and End-Fire Radiation Patterns</i>	
Shiva Singh (PDPM IITDM Jabalpur, India), Abhishek Patel (PDPM IITDM Jabalpur, India), Manoj Singh Parihar (IITDM, India)	259
<i>Microwave Imaging Using Balanced Antipodal Antenna for Security Applications</i>	
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)	263
<i>A Multiband Dual-Mode Frequency Reconfigurable Antenna for Various Wireless Applications</i>	
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)	267
<i>Inhomogeneous Conformal Rectangular Microstrip Antenna</i>	
Mirza Wazed Ahmed Beggs (NIT ROURKELA, India), Sudipta Maity (National Institute of Technology Rourkela, India)	271

# Satellite Antenna Technologies

<i>K/Ka-Band Dual Circularly Polarized Shared Aperture Microstrip Array Antenna</i>	
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)	275
<i>Multiple Panel Array Antenna Concept for SOTM Application</i>	
Daksh Dhiman (Antenna Systems Group & ISRO, India), Sravan Kumar Sagi (Space Applications Centre ISRO, India), Milind B Mahajan (Space Applications Centre, ISRO, India)	279

<i>Design of AMC Backed Printed Monopole Antenna for GPS and Satellite Applications</i>	
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) .....	282
<i>Rectangular Dielectric Resonator Antenna for Ku-Band Satellite Applications</i>	
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) .....	286
<i>Design of Wide-Band, Dual Linear Ku-Band CATF Feed for Multi-Beam Satellite Characterization</i>	
Abhinav Kumar Jha (Isro, India), Puneet K Mishra (URSC, India), Haindavi Manigilla (URSC, India), Renuka R (URSC, Bangalore, India), Pramod V. B. (UR Rao Satellite Centre, India), RV Nadagouda (Indian Space Research Organisation, India) .....	290
<i>Satellite Antenna Design Using AI Based Approach</i>	
Sanika Borgaonkar (Shri G. S. Institute of Technology and Science, India), Satish Jain (SGSITS INDORE, India) .....	293

## Metasurfaces and Associated Technologies

<i>Metasurface Loaded Conformal Load-Bearing Antenna Structure for Defence Aircraft</i>	
Anubhav Kumar (Indian Institute of Technology Kanpur, India), Raghvendra Kumar Chaudhary (IIT Kanpur, India) .....	298
<i>Monopole-Fed Modulated Metasurface Based Antenna for Beam-Steering Applications</i>	
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) .....	301
<i>A Dual-Band Composite Right/Left-Handed SIW Metamaterial Unit Cell for mmWave Communications</i>	
Priya Rahul (KIIT Deemed to Be University, India), Sudhakar Sahu (KIIT University, Bhubaneswar, India), Wridhhi Bhowmik (KIIT, India) .....	305
<i>Efficient Far-Field Microwave WPT Using GRIN Lens Metamaterial at 2.45 GHz</i>	
Shashank Kulkarni (IIT Guwahati, India), Sisir Kumar Nayak (Indian Institute of Technology Guwahati, India) .....	309
<i>Design of a Polarization-Insensitive Wideband Metamaterial Absorber in Mid-Band of Sub-6 GHz for 5G</i>	
Punyatoya Routray (IIT Bhubaneswar, India), Debalina Ghosh (IIT Bhubaneswar, India) .....	313
<i>Wideband Microwave Absorption in C and X Bands With Metallic Resonator and Resistive Ink</i>	
Satya Prasad Mishra (NIT ROURKELA, India), Sudipta Maity (National Institute of Technology Rourkela, India) .....	318
<i>Graphene Metasurface Absorber for Electromagnetic Interference Shielding in Future Space Applications</i>	
Naveen Kumar Maurya (Vishnu Institute of Technology, Bhimavaram, India), G. Challa Ram (Shri Vishnu Engineering College for Women, India), Priyanka Singh (ISTRAC, India) .....	322
<i>All Dielectric LWIR Metasurface Reflectors for Space Technologies</i>	
Jayesh Sadasivan (Mahindra University, India), Sagar Chowdhury (Indian Institute of Technology Madras, India), Rituraj Rituraj (IIT Kanpur, India), Jayasri D (Mahindra University, India), Srinil Krishnamurthy (Indian Institute of Technology Madras, India), Sivarama Krishnan (IIT Madras Chennai, India) .....	326

## Assembly, Integration & Testing

<i>Chandrayaan-3 Lander Module Assembly, Integration and Testing</i>	
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) .....	330
<i>Assembly, Integration and Testing of Special Tests of Chandrayaan-3</i>	
Shweta Shweta (ISRO, India) .....	334
<i>Challenging Integration Aspects of Aditya L1 Spacecraft</i>	
Medasani Thejasree (URSC & ISRO, India) .....	338
<i>Integration of INSAT3DS Spacecraft and Challenges</i>	
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) .....	342
<i>Design and Development of Test Controller and Test Command Control Unit for Integration and Testing of a Mission System of Airborne Surveillance System</i>	
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) .....	346
<i>An ERAS for Aircraft Electrical System Design Validation, System Integration and Pre-Installation Checks</i>	
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) .....	351
<i>Determination of Shield Height of Power Amplifiers Using 3D EM Simulation</i>	
Vidyalakshmi Mandakolathur Ravi (Tejas Networks, India) .....	355



# Mission Planning/Control, Navigation & Guidance-II

<i>Formation Control for Tracking Non-Cooperative Space Objects</i>	
Ishfaq Zahoor Bhat (Indian Institute of Science, Bengaluru, India), Debasish Ghose (IISc Bangalore, India) .....	359
<i>Comparative Analysis of A-Star Search and RRT for Autonomous Free-Flying Bots</i>	
Prapti Bordoloi (Nirma University, India), Shashank Pachauri (Space Application Centre, ISRO, India), Himanshu K. Patel (Nirma University & International Society of Automation, India) .....	363
<i>Lambert Problem Based Maneuver Time and Delta-V Estimation</i>	
Gurpreet Singh (URSC & IIIT Delhi, India), Sanat Biswas (IIIT Delhi, India) .....	367
<i>Bioinspired Bald Eagle Search Based Guidance for Fuel-Optimal Spacecraft Docking</i>	
Arya Das (IIT Kanpur, India), Dipak Kumar Giri (IIT KANPUR, India) .....	370
<i>Way-Points Based Trajectory Simulation Using Web Technology for Range Environment</i>	
Amit Sardar (Integrated Test Range, India) .....	374
<i>Inter-Satellite Link Network Scheduler for GNSS Constellation</i>	
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) .....	380
<i>On Cryptographic Approaches for Detecting GNSS Spoofing Attacks</i>	
Jothi Ramalingam (National Institute of Technology Karnataka, Surathkal, India), Veeresh R Maned (National Institute of Technology Karnataka, Surathkal, India) .....	384
<i>Development of Onboard Signal Processor for ISRO's GNSS-Remote Sensing Instrument</i>	
Pratik Sharma (Space Applications Centre, ISRO, India), Saravana B Kumar (Indian Space Research Organisation, India), Pramod Mishra (Indian Space Research Organization India, India), Avadhesh Kumar (SAC-ISRO, India), Shalini Gangele (Space Applications Centre, ISRO, India) .....	389

# Special Session on AI/ML Technologies for SPACE-II

<i>Dynamic Approach for Object Detection Using Deep Reinforcement Learning</i>	
Sheetal Borkar (DIAT, India), Upasna Singh (DIAT, India), Soumya S (DIAT, India) .....	393
<i>Denoising Lunar Hyperspectral Images Using CNN With Skip Connections</i>	
Urvashi Mesariya (Nirma University, India), Anuj Shah (Nirma University, India), Anuja Nair (Nirma University, Ahmedabad, Gujarat, India), Tarjini Vyas (Nirma University, India), Shivani Desai (Institute of Technology Nirma University, India), Sudeep Tanwar (Nirma University & Institute of Technology, India) .....	398
<i>Machine Learning-Based Models for State Estimation of Ads-B Gps Data</i>	
Leela Vishnu Vardhan (Hindustan Institute of Technology and Science, India) .....	402
<i>Single Band NIR-To-RGB Image Colorization Using Attention Guided Conditional GAN</i>	
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) .....	407
<i>Retinal Microvascular Complications Detection Using Deep Learning Model</i>	
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) .....	411
<i>A Novel Deep Learning Approach for Data Analysis on High Resolution Chandrayaan-2 Data</i>	
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) .....	415
<i>Deep Learning-Based Radio Frequency Interference Classification and Mitigation in Radar Images: A CNN and DnCNN Approach</i>	
Shweta Shukla (ISTRAC, Bangalore, India), Shivangi Mishra (ISTRAC, ISRO, India), Vk Anandan (ISRO, India), Deepak Mishra (IIST, India) .....	419
<i>Attention-Based Semantic Segmentation of Satellites for In-Orbit Space Situational Awareness</i>	
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) .....	424

# Women-Led Technology Developments

<i>An Innovative Long Distance Communication Technique With Suppressed EDFA Transients Using Differential Signals</i>	
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) .....	428
<i>A Dual Linear Polarized, Wide Bandwidth, C-Band CATF Feed for Radiated Mode Characterization of Spacecraft Payloads</i>	
Haindavi Manigilla (URSC, 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) .....	432



<i>A Parabolic Reflector Antenna for C Band Satellite Telemetry Reception During Launch Phase</i>	
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) .....	436
<i>Design and Development of Liquid Cooling System for Airborne Radar</i>	
Annapurna Sogunuru (CABS, India), Vikram P (CABS, India), Gokul Depuk TP (CABS, India), Priyank Prasad (CABS, India) .....	440
<i>Realization of HMC Based Indigenous High Current Solid State Switch Controller for Aerospace Applications</i>	
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) .....	445
<i>Transit Photometry for Estimating the Velocity of Exoplanets and Specific Defence Applications</i>	
Harshita Bose (Delhi Technological University, India) .....	450
<i>Automated Marine Debris Detection From Sentinel-2 Satellite Imagery</i>	
R Priyadarshini (National Institute of Technology, India), Varun Arya (NITK Surathkal, India), Sowmya Kamath S. (National Institute of Technology Karnataka, India) .....	454
<i>Energy Efficient and Latency-Constrained Task Offloading in Cooperative Cube Satellite Network</i>	
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) .....	459

## 5G/6G/mm-wave Technologies

<i>Compact Planar Power Divider for 5G Applications</i>	
Murugesh Surya S (HCLTECH, India), Debojyoti Choudhury (HCLTECH, India), Ranadhir Chatterjee (HCLTECH, India) .....	464
<i>Low Profile Multi-Band Antenna Design for 5G Body Centric Applications</i>	
Saswati Ghosh (HCL Technologies Ltd, India), Debojyoti Choudhury (HCLTECH, India), Chayan Roy (Indian Institute of Technology Kharagpur, India) .....	467
<i>Design and Analysis of Modified WR229 With a Tapered Section for 5G Signal Rejection</i>	
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) .....	471
<i>SIGMAML: SNR-Guided 5G Mobility Management Using Machine Learning Algorithms</i>	
Adnan Farooq Bhat (National Institute of Technology, Srinagar, India), Shahid Mehraj Shah (National Institute of Technology, Srinagar, J&K, India) .....	474
<i>Minimizing Costs for Content Service Providers in 6G Space-Air-Ground Integrated Networks</i>	
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) .....	479
<i>A Compact MIMO Dielectric Resonator Antenna for n261 mm-Wave Satellite Communication</i>	
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) .....	484
<i>Design and Development of Vacuum-Sealed Waveguide Window for mm-Wave and Sub mm-Wave Applications</i>	
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) .....	488
<i>Fault Resilient Payload Controller With AGOC Algorithm for mm-Wave Humidity Sounder Payload</i>	
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) .....	493

## IR/Photonics/Electro-optics Technologies

<i>On-Board Performance of Star Trackers With Very High Absorber CNT Film Coated Baffles</i>	
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) .....	497
<i>Integrated Electro Optic Infra Red(EO/IR) Simulation for Airborne Maritime Surveillance</i>	
Boppena Nagaraju (DRDO, India), R Rajesh (CABS, India) .....	501
<i>Simulation Analysis of Ge2Sb2Te5 Vertical Photodetector on Silicon Photonic for Various Thickness Levels</i>	
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) .....	505
<i>Reduced Graphene Oxide Based X Ray Detector for Space Application</i>	
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) .....	509

# Special Session on Software Defined Radio

<i>Video Streaming Over Software Defined Radio Using PolarFire FPGA and AD9371</i>	
Prakash Reddy Battu (Microchip, India), Sunny Bezawada (Microchip, India), Kranthi Kumar Ghanapuram (Microchip Technology, India), Varaprasad Palivela (Microchip, India), Nagasrujit Adimulam (Microchip, India)	513
<i>Design Challenges in a SDR Platform for Space Applications</i>	
Girish Chandra Tripathi (Tejas Networks Limited, India), Ratnesh Kumar Gaur (Tejas Networks & IEEE ORG, India)	518
<i>Ambiguity Analysis of Multi-User OTFS-LFM Waveform for ISAC</i>	
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)	522
<i>FPGA Based OFDM MIMO Transmit Beamformer for Multi-Functional Software Defined Radars</i>	
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)	527
<i>Wideband Predistorter for Frequency Hopped Signal</i>	
Jaya Mishra (Defence Electronics Applications Laboratory & Indian Institute of Technology Roorkee, India), Meenakshi Rawat (IIT Roorkee, India)	532
<i>Design of Low Cost FFT Based Spectrum Analyzer for Monitoring Stations</i>	
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)	536
<i>Transforming Satellite Ground Station Architecture Using Software-Defined-Radio</i>	
Jitendra Kumar Kapse (MCF ISRO, India), Gireesh M. (Communication Instrumentation and Baseband, MCF, India), Mudumba Ramesh (CIB, MCF, India)	539
<i>GNU Radio Based Satellite Communication Tool</i>	
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)	544

# Special Session on Quantum Technologies

<i>A Brief Review and Challenges in Quantum Computing</i>	
Rajendraprasad Reddy Yerabalu (Indian Space Research Organisation, India), Yogesh Kr (URSC Bangalore, India)	548
<i>TRNG Integration in FPGA-Based QKD Control Electronics</i>	
Mohd Razin Ashfaq (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)	552
<i>Low Noise GaN/AlxGa1-xN on SiC Vertical p-n Diodes for Improved Optoelectronic Performance</i>	
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 (Professor, India)	557
<i>Atom Interferometry in Space: Improving Quantum Sensors for Space Environments</i>	
Manju Perumbil (Central University of Kerala, India), Stuart S Szigetti (Australian National University, Australia), Simon A Haine (Australian National University, India)	N/A
<i>Designing 256-QAM for High Data Rate Optical Wireless Communication</i>	
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 Basil Raj (Defence Institute of Advanced Technology Pune, India)	565
<i>Implementation of PPM Waveform for Underwater Laser Communication</i>	
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)	570

# Image/Data/Signal Processing-II

<i>Chandrayaan-2 Onboard Results for Lander Horizontal Velocity Camera and Improvement for Chandrayaan-3</i>	
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)	575
<i>Enhancing Resilience: Redundancy Reduction for Object Detection in Adversarial Conditions</i>	
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)	580
<i>Bearing Only Track to Track Association for Airborne Surveillance System</i>	
B R Kapuriya (CABS, India), A Muthukumar (CABS, India), Renu Kumari Chauhan (Centre for Airborne Systems, India), R Rajesh (CABS, India)	584

<i>PLANET: Multi-Class Patch Layer Adaptive Network for Satellite Image Segmentation</i>	
MD Samiul Islam (University of Alberta, Canada), Irene Cheng (University of Alberta, Canada)	588
<i>Vegetation Health Assessment Through a Novel Index Approximation Filter and K-Means Clustering</i>	
Fei Yang (University of Alberta, Canada), Irene Cheng (University of Alberta, Canada)	592
<i>Distributed Environment Monitoring Using Minimum Volume Ellipsoid</i>	
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)	596

## RF Switches/RFID

<i>High-Power SPDT Switch With an Integrated Driver for P-Band Airborne RADAR Application</i>	
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)	601
<i>A Systematic Approach to Mitigate Parasitics for Wide-Band High Isolation CMOS SPDT Switch</i>	
Jyotsna Ladkani (ISRO, India), Bhumiika Deo (ISRO, India), Hari Shanker Gupta (Space Applications Centre ISRO, India)	605
<i>Evaluation of Power Transfer Efficiency and Received Power for Near-Field UHF RFID System</i>	
RAVANTH DONTULA (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)	610
<i>Polarization Switchable Compact Dual-Band Slot Antenna for Low-Cost RFID Reader</i>	
Sanket Kalamkar (Defence Institute of Advanced Technology (DIAT), India), Rajesh K Singh (Defence Institute of Advanced Technology, India), KP Ray (DIAT, Pune, India)	614
<i>Design and Analysis of 4x4 EBG Backed Miniaturized Disc-Shaped Wearable RFID Tag Antenna for Biomedical Communications</i>	
Shubhanshi Jain (Indian Institute of Space Science and Technology, Thiruvananthapuram & 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)	618

## Checkout Systems

<i>Automation and Optimization of Spacecraft RF Checkout Through Software Solution</i>	
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)	622
<i>Development of FPGA Based Automated System for Testing Launch Vehicle Checkout Umbilical Interfaces</i>	
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)	626
<i>Grounding Architecture of Checkout Systems for Testing Triple Independent Bus Systems</i>	
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)	630
<i>Onboard Power Distribution and Measurement for Launch Vehicle Avionics System With Reduced Umbilical Interface</i>	
Sheikh Abdul Vaheed (ISRO, India), Vaddavalli Dilipkumar (VSSC, ISRO, India), A Muralikrishna (ISRO, India), Binny Mathew (ISRO, India)	634
<i>Hybrid Based Test Methodology for Characterization of High Power Payloads</i>	
Shiv Shankar Pareek (ISRO & Space Applications Centre, India), Vinay Yadav (ISRO, India), Rakesh Vyas (Space Applications Centre, India)	638
<i>DESIGN and SIMULATION of 32 x 64 RF SWITCH MATRIX Up to 40 GHz</i>	
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)	642

## Special Session on AI/ML Technologies for SPACE-III

<i>Design and Implementation of CNN-Based Custom Net Architecture With Improved Inference Time for Realtime Remote Sensing Application</i>	
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)	647
<i>Multi-Stage UAV-Based System for Scalable and Accurate Crop Health Monitoring</i>	
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)	652

<i>A Novel Feature Selection Method for Solar Flare Forecasting</i>	
Ashwini Nagaraj Shenoy (National Institute of Technology Karnataka, India), Deepu Vijayasenana (Associate Professor, India), Raghavendra S Bobbi (National Institute of Technology Karnataka, India), Sreejith Padinhatteeri (Manipal University, India), Adithya H N (Manipal University, India)	656
<i>Investigation of Clustering Methods for SDSS Galaxy Images Through Feature Extraction With VGG-16</i>	
Snigdha Sen (Manipal Institute of Technology Bengaluru, Manipal Academy of Higher Education, Manipal, India), Pavan Chakraborty (Indian Institute of Information Technology, Allahabad, India), Sumit Das (IIIT Allahabad, Afghanistan & NA, India), Keshav Pandey (Indian Institute of Information Technology Allahabad, India), Pagdala Lakshmi Venkata Bhavan Narayana (Indian Institute of Information Technology, Allahabad, India)	660
<i>Remote Sensing Image Super-Resolution Using Deep Learning</i>	
P Rajeshwari (India), Pamujula Lakshmi Priya (India), M Pooja (India), Ganta Abhishek (India)	665
<i>ML Based Model for Forecasting Ionospheric Scintillations Using GAGAN Data</i>	
Lakshmana 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)	669
<i>Multi Feature Descriptor Based Ship Wake Detection Using AdaBoost-Weighted Extreme Learning Machine</i>	
Annalakshmi Ganesan (Vel Tech Rangarajan Sagunthala R&D Institute of Science and Technology, India)	673
<i>ML Based Model for Detection of Ionospheric Scintillations Using PolRx5S Data</i>	
Lakshmana 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)	678

## Mechanism & Robotics

<i>Design and Development of Deployment Mechanism for 3.6m Umbrella Type Space Deployable Antenna Reflector</i>	
Pradeep Ananthanarayanan (Space Applications Center & Indian Space Research Organization, India), Akshay Dattaprasad Khamkar (Space Applications Centre, ISRO, India), Hemant Arora (Space Applications Centre, ISRO, India), Arup Kumar Hait (Space Applications Centre, ISRO, India)	682
<i>Design &amp; Development of Periscope Coarse Pointing Gimbal Mechanism</i>	
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)	686
<i>On the Control Design of Half Humanoid for Space Applications</i>	
Sangeetha G. R. (Indian Space Research Organisation & ISRO Inertial Systems Unit, India), Harikumar Ganesan (Indian Institute of Technology Madras, India), Durairaj R (Scientist, India)	691
<i>Design of a Series-Elastic Actuator for a Humanoid Robot for Space Applications</i>	
Shubhankar Riswadkar (RWTH Aachen University, Germany), S Barat (Indian Institute of Technology, Gandhinagar, India), Harish Palanthandalam Madapusi (IIT Gandhinagar, India)	696
<i>Design and Development of Underactuated Soft Robotic Gripper for Space Applications</i>	
Saloni Malviya (VIT Bhopal, India), Ankit Sharma (Space Application Center (ISRO), India), Hemant Arora (Space Applications Centre, ISRO, India), Prashant GK (VIT Bhopal, India)	700
<i>Satellite-Borne Space Waste Management System Using 3D Printing and Robotics</i>	
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)	705
<i>Origami for Deployment of Rigid Panel Array During Space Applications</i>	
V Sri Pavan RaviChand (IISc Bangalore, India), Shishir Kolathaya (IISc Bangalore, India), K Balaji (URSC Bangalore, India)	709

## Microwave Devices

<i>Design of a Very Low Noise Figure Wideband LNA With Differential Output for RF Receiver Applications</i>	
Rohit Kumar (Indian Institute of Technology Dharwad, India), Heena Mulla (Indian Institute of Technology Dharwad, India), Nagaveni S (IIT Dharwad, India)	714
<i>Design and Realization of Cryogenic Low Noise Amplifier for S-Band</i>	
Akshay Siva G S (Engineer Contract, India), Vismitha Pramod (Engineer Contract, India), Shahul Hameed V (Scientist, India), Sunaina S (Engineer Contract, India)	718
<i>Advanced Design Strategies for Ultrawideband Power Amplifiers Utilizing Multi-Branch Matching Networks</i>	
Hemant Kumari (National Institute of Technology Meghalaya, India), Gaurav Bhargava (National Institute of Technology Meghalaya, India), Shubhankar Majumdar (National Institute of Technology Meghalaya, India)	721
<i>High Efficiency 70W C-Band GaN MMIC PA for Space-Borne RADAR Applications</i>	
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)	725
<i>Design of an 8-Way 20kW Co-Axial Radial Power Combiner for High Power S-Band Applications</i>	
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)	729

#### *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) .....	733
--	-----

#### *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) .....	737
---	-----

## RIS/FSS based Technologies

#### *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) .....	741
---	-----

#### *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) .....	746
--	-----

#### *Reconfigurable Intelligent Surfaces Aided Localization Using Compressive Sensing*

Priyanka Khedar (CABS, DRDO, India), Sony Soman Oommen (CABS, India), K Rajalakshmi Menon (CABS, India) .....	750
---	-----

#### *RIS-Aided Electronic Countermeasures*

Ilter Erol Gurul (Koc University & ASELSAN AS & ASELSAN AS, Turkey), Ertugrul Basar (Koc University, Turkey) .....	756
--	-----

#### *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) .....	760
--	-----

#### *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) .....	764
--	-----

#### *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) .....	768
--	-----

#### *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) .....	772
---	-----

## Navigation Technologies-I

#### *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) .....	776
--	-----

#### *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) .....	780
--	-----

#### *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) .....	785
---	-----

#### *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) .....	790
---	-----

#### *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) .....	794
--	-----

#### *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) .....	799
---	-----

#### *Acquisition and Tracking of NavIC L1 SPS Signals*

Chittimalla Srinu (Osmania University & NERTU, India), Laxminarayana Parayitam (Osmania University, India) .....	804
--	-----

#### *First Pioneering Soil Moisture Estimation Software Leveraging Navigation Signals From India's NavIC Satellite*

Vivek Chamoli (Graphic Era Hill University Dehradun, India) .....	808
---	-----

# Special Session on Human in Space/Simulators

## *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) ..... 812

## *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), Rahul Kumar M Dhingani (Space Applications Centre, ISRO, India), Himanshu Patel (Indian Space Research Organisation (ISRO), India), Saravana B Kumar (Indian Space Research Organisation, India) ..... 816

## *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) ..... 820

## *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) ..... 824

## *Design and Characterization of Thruster System Using Blowers for Upcoming Spacecraft Simulator*

Aditya Prakash (Indian Institute of Technology Kanpur, India), Mokkaapati Shanmukha Sree (Indian Institute of Technology Kanpur, India), Nitika Jaggi (Indian Institute of Technology Kanpur, India), Dipak Kumar Giri (IIT KANPUR, India) ..... 828

## *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) ..... 833

# THz Technologies

## *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) ..... 837

## *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) ..... 841

## *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) ..... 845

## *Far Field Antenna Measurement System Using Frequency Extenders in Sub-THz Frequency Range*

Dharmendra Singh (Space Applications Centre, SAC ISRO & Not Applicable, India) ..... 849

## *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) ..... 853

## *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) ..... 857

# System Engineering

## *MBSE Driven End to End LEO Satellite to Ground Station Communication System*

Tej Kiran 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) ..... 861

## *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) ..... 866

## *Easing Adoption of Model Based System Engineering With Application of Generative AI*

Anamika Patel (CABS, India), Maheshwaran Y (CABS, India), Santhya P (CABS, India) ..... 871

## *Centralized Simulation Controller Framework for Airborne Sensor Simulation*

Rajesh Gandhi (CABS, India), R Rajesh (CABS, India) ..... 875

## *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) ..... 880

## *Electromagnetic Compatibility in Wearable Devices Using Artificial Magnetic Conducting Surfaces*

Ashish Raj (Birla Institute of Technology Mesra, India), Nisha Gupta (Birla Institute of Technology, Mesra, India), Itu Snigdha (BIT Mesra, India) ..... 885



#### *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), Bhuvaneshwar Semwal (Space Applications Centre, ISRO, India), Anil Shah (SAC, ISRO, India), Shilpa Pandya (Space Applications Centre (ISRO), India) .....	888
---	-----

#### *A Mode Converting Antenna Based on Step Waveguide Discontinuities for High Power Microwave Applications*

Neha Parmar (BITS PILANI HYDERABAD, India), Narain Shriram 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) .....	892
---	-----

## Special Session on AI/ML Technologies for SPACE-IV

#### *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) .....	896
---	-----

#### *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) .....	901
---	-----

#### *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) .....	906
---	-----

#### *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) .....	911
---	-----

#### *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) .....	916
---	-----

## Mission Planning/Control & Guidance-III

#### *Obtaining Smoothed Airdata During Wake Penetrations and Atmospheric Disturbances*

Kamali Chandrasekaran (CSIR National Aerospace Laboratories, India) .....	922
---	-----

#### *Fusion of Flush Port Measurements With Inertial Sensors*

Kamali Chandrasekaran (CSIR National Aerospace Laboratories, India) .....	926
---	-----

#### *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) .....	930
--	-----

#### *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) .....	935
---	-----

#### *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) .....	940
--	-----

#### *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) .....	944
--	-----

#### *Stability Analysis, Testing and Realization of a Floating Target*

Rajib Kumar Das (Integrated Test Range, India), Milan Pal (FM University, India) .....	948
--	-----

## SIW/Vivaldi/Spiral Antennas

#### *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) .....	952
---	-----

#### *High Gain Wideband 2x8 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) .....	957
--	-----



<i>Low RCS Vivaldi Antenna (1GHz-18GHz) for Electronic Warfare Applications</i>	
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)	961
<i>Design of L-Band Metal Type Vivaldi Antenna Array</i>	
Vismitha Pramod (Engineer Contract, India), Shahla K P (Scientist, India), Shahul Hameed V (Scientist, India), Chinni Prabhunath G (None, India)	965
<i>EM Design and Performance Analysis of Cavity-Backed Archimedean Spiral Antenna (2-18 GHz)</i>	
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)	969
<i>Optimizing the Design of an Ant-Shaped Millimeter-Wave Antenna for Broadband Applications: 9 to 100 GHz</i>	
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)	974
<i>Ka-Band Hemispherical Dielectric Lens and Horn Assembly for Discrete Beamforming</i>	
Shahla K P (Scientist, India), Shahul Hameed V (Scientist, India), Vismitha Pramod (Engineer Contract, India), Chinni Prabhunath G (None, India)	978

## Filters & Passive Microwave Devices

<i>Design of Split Ring Resonator for EM Waves Absorbes and Stop Band Filters in Aerial Applications</i>	
Bharti Gajendra (Integrated Test Range, India), Pravakar Mallick (Integrated Test Range, Chandipur & Balasore, Odisha, India), Milan Pal (FM University, India)	981
<i>Design of Wide Bandwidth Filter at S-Band for Spacecraft Testing Applications</i>	
Abhilasha Agarwal (UR Rao Satellite Center, Indian Space Research Organisation, 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)	986
<i>Improved Clutter Correction Technique Using Recursive Comb Notch FIR Filter</i>	
Anindya Ghosh (BGSW, India), Debashish Chakravorty (IIT Kharagpur, India), Ajay Chakraborty (Techno India University, India)	990
<i>Compact C Band High Rejection Cavity Bandpass Filter</i>	
Shashank Soi (DRDO, India), Sushil Singh (Defence Electronics Applications Laboratory, India), Rajendra Singh (SCIENTIST, India)	994
<i>Small Scale Bandpass Filter Having Wide Rejection Bandwidth</i>	
Dilip Kumar Choudhary (Vellore Institute of Technology, India)	998
<i>Coupled Line Wide Stop Band Diplexer Using Stepped Impedance Resonator</i>	
Anindya Ghosh (BGSW, India), Debashish Chakravorty (IIT Kharagpur, India), Ajay Chakraborty (Techno India University, India)	1002
<i>Design of Microwave Sensor for CFRP Coating Thickness Measurement Using Odd Mode Electric Coupling Cavity Aperture</i>	
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)	1006
<i>Design of Coaxial Cavity Duplexer for Space Applications</i>	
Vaishnavi Bhope (ANSYS SOFTWARE PVT. LTD., India), Sharon Varghese (Ansys Software Pvt. Ltd., India), Nijas Cm (Ansys Software Pvt Ltd & Ansys, India)	1011

## System Reliability & QA

<i>Reliability Modelling of Complex Satellite Transmitter System With Common Element and Shared Redundancy Using Markov Chain</i>	
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)	1015
<i>Quality Compliance of HDI PCBs for Space Use</i>	
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)	1019
<i>Software Complexity Measurement for Flight Software</i>	
Savitha A (India), Pushpavathi T. P Pushpavathi (Pushpavathitp, India), Yogesh Kr (URSC Bangalore, India), Prasanna Kumar (RQSG, India)	1023
<i>Quality Assurance in the Development of Indigenous AEW System</i>	
Annapurna Sogunuru (CABS, India), Gokul Depuk TP (CABS, India), Gracy Philip (CEMILAC, India), K Rajalakshmi Menon (CABS, India)	1027
<i>Reliability Analysis of Satellite Data Reception System</i>	
Sridevi Ch (ISRO, India), Shailender Kumar SP (ISRO, India), Chalapathi Rao A (ISRO, India), Aparna N (ISRO, India)	1031
<i>NSGA II Pareto Optimal Solutions for Antenna Locations on a Commuter Aircraft</i>	
Veena Haridas (CSIR-National Aerospace Laboratories, India), Vaitheeswaran M (National Aerospace Laboratories, India), Prathiksha M V (CSIR National Aerospace Laboratories, India)	1035
<i>Integrated Quality Management System Aligning System Engineering With Aerospace Standard AS9100D 2016</i>	
GRACY PHILIP (CABS, India), Gokul Depuk TP (CABS, India), Rakesh Raikwar (CABS, India), K Rajalakshmi Menon (CABS, India)	1040

# Ground Support Technologies

<i>Spacecraft Operations Automation: Software Solutions for Ground Segment</i>	
Anuj Nogja (MCF, ISRO, India), Manish Kumar (MCF, ISRO, India)	1044
<i>The Strategic Role of ISRO's Polar Ground Station in Space Data Acquisition and Global Collaboration</i>	
Chinmay Kumar Patra (Space Applications Centre & Indian Space Research Organisation, India), Sahal Mohammed M. N. (ISRO Telemetry Tracking and Command Network, India), Sudhakar Kandukuri (National Remote Sensing Centre, India)	1048
<i>Automating Ground System Using Baseband Monitoring and Control Software (BMCS)</i>	
Jitendra Kumar Kapse (MCF ISRO, India), Ashfaq K P (MCF, ISRO, India), Surendra C (MCF, ISRO, India)	1052
<i>Efficient Utilization of Single Ku Band Ground Terminal for Co-Located Satellites TTC Operation</i>	
Hridesh Kumar (ISRO, India), Deepak Kumar (ISRO, India), Shraddha Gupta (ISRO, India), Javed S A R Qureshi (ISRO, India)	1056
<i>Statistical Size Estimation of Solid Stage Debris Ejected During Satellite Launch Vehicle From Ground Based Active Phased Array Radar Observations</i>	
Vaidhyanathan A (Scientist, India), Aditya Sarkar (Scientist, India), Sravan Kumar Venepally (Satish Dhawan Space Center, Sriharikota, India), Rajkumar S (Scientist, India)	1061
<i>Advancing Deep Space Mission Orbit Determination: A Novel Approach for Doppler Data Collection and Processing</i>	
Bijoy Kumar Dai (ISRO, India), Manikantan Ramdas (ISTRAC, India), Nandini Harinath (ISTRAC, India), Sheli Sinha Chaudhuri (Jadavpur University, India)	1066
<i>Enhancement of Space Link Extension (SLE) Provider Software for Return Channel Frame (RCF) Service</i>	
Divyang Arora (Indian Space Research Organization, India), Md. Adnan (Indian Space Research Organization, India), M. Parvathi Devi (Indian Space Research Organization, India), S Santhakshmi (Indian Space Research Organization, India)	1071
<i>Incorporation of Automation Modalities Into SAR Data Processing Operations to Expedite and Enhance Problem Resolution</i>	
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)	1075

# Radar Technologies-II

<i>Miniaturized Reconfigurable Frequency Synthesizer Module for MiniSAR Airborne Mission</i>	
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)	1080
<i>Multi-Channel Data Acquisition and Digital Beam Forming System for Space-Borne Sweep SAR Mission</i>	
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)	1084
<i>NovaSAR-Automated Data Processing for Geometric Correction and Radiometric Terrain Normalization for Analysis Ready Data</i>	
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)	1089
<i>Development of Intelligence Software for GPR Investigation of Buried Object</i>	
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)	1093
<i>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</i>	
Venkata Kishore Kothapudi (Vignan's Foundation for Science Technology and Research, India), Kati Praveena (Vignan's Foundation for Science, Technology and Research, India)	1097
<i>Classification of Ground Penetrating Radar Data Using YOLOv8 Model</i>	
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)	1100
<i>Gain Enhanced Linear Rectangular Dielectric Resonator Antenna Array for RADAR Applications</i>	
Mohith N Raate (R V College of Engineering, India), Amogh G (RV College of Engineering, India), Shushrutha K S (RVCE Bangalore, India)	1104
<i>Modeling of mmWave FMCW Radar System for 2D SAR Imaging</i>	
Chandra Wadde (SRM University AP, India), Rajesh Shankar Karvande (DRDO, India), Rupesh Kumar (SRM University AP, India)	1109

# Communication Technologies-II

<i>Efficient FPGA Implementation of SISO-OTFS Modem for Aircraft Communications in High-Doppler Scenarios</i>	
Md Asfani (Central Research Laboratory, India), Sapta Girish Babu Neelam (Indian Institute of Technology Bhubaneswar & Bharat Electronics Limited, India)	1113
<i>Novel Architecture for Communication Channelizer</i>	
POONAM PANCHAL (Defence Electronics Application Laboratory, India), Gaurav Kapur (Defence Research Development Organization, India)	1117
<i>Chirp Orbital Angular Momentum Beams for Robust Communications in Adverse Propagation Conditions</i>	
Ravi Kadlimatti (Birla Institute of Technology and Sciences, Pilani, India), Farhana Firdous (BITS-PILANI KK BIRLA GOA CAMPUS, India)	1122

<i>Model-Based Design for Solid State RF Power Transmitters for OFDM Applications</i>	
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)	1127
<i>Receiver Support Performed Congestion Control for TCP Over Lossy Links</i>	
Satendra Kumar Yadav (DEAL, India), Tulip Kumar Toppo (RCI, India), Sugata Gangopadhyay (Indian Institute of Technology Roorkee, India)	1131
<i>Over-The-Air Phased Array Antenna Calibration Performance Validation and Comparison: An Experimental Approach</i>	
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)	1135
<i>Band Grouping: Leveraging Spectral Correlation for Improved HSI Processing</i>	
Sadia Hussain (IIT Delhi, India), Brejesh Lall (Indian Institute of Technology Delhi, India)	1139

## Special Session on AI/ML Technologies for SPACE-V

<i>Dynamic Stability-Driven Torque Control and Trajectory Planning for a FFSM Using PINNs</i>	
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)	1144
<i>Preliminary Analysis of mmWave SAR Model and Machine Learning Approach</i>	
Rupesh Kumar (SRM University AP, India), Chandra Wadde (SRM University AP, India), Gayatri Routhu (SRM University AP, India), Rajesh Shankar Karvande (DRDO, India)	1148
<i>Generation of Automatic Spectral Classification Map Using Clustering at the South Pole-Aitken Basin on the Moon</i>	
Taisei 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)	1152
<i>Securing Industrial IoT Networks Using Conv2D-Attention Approach With Softmax Classifier</i>	
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)	1156
<i>rasterMiner: An Open-Source Python Library to Discover Knowledge From Raster Imagery Data</i>	
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)	1160
<i>Estimating Actual Size of Missile on Air Using Object Detection Algorithm</i>	
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)	1164

## Technology Compendium & TWTs Related Technologies

<i>Technology Development for Validation and Update of Aerodynamic Database of Aircraft Using System Identification Techniques</i>	
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)	N/A
<i>A Planar Microstrip Line Based Compact Ultra Broadband Power Divider / Combiner</i>	
Pankaj Sandip Bhavsar (SpaceApplicationCentre, IndianSpaceResearchOrganization & 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)	N/A
<i>Technology Development of Helix-TWTs of Different Bands at CSIR-CEERI for Strategic Applications</i>	
Amitavo Choudhury (CSIR-CEERI Pilani, India), Chirag Prakashchandra Mistry (CSIR-Central Electronics Engineering Research Institute, Pilani, Rajasthan, India), Subhradeep Chakraborty (CSIR-CEERI, Pilani, India), Sanjay Ghosh (Senior Principle Scientist, India)	N/A
<i>Design and Development of Ultra-Wideband Transceiver's Functional Blocks MMICs Using GaN Technology</i>	
Ashish Jindal (DRDO & IIT Delhi, India)	N/A
<i>Design of the Radiation Cooled Packaging of the Helix TWT</i>	
Chirag Prakashchandra Mistry (CSIR-Central Electronics Engineering Research Institute, Pilani, Rajasthan, India), Amitavo Choudhury (CSIR-CEERI Pilani, India), Subhradeep Chakraborty (CSIR-CEERI, Pilani, India), Sanjay Ghosh (Senior Principle Scientist, India)	1184
<i>Surface Treatment of Heat Sink Fins Made of Aluminium Alloy Used for Thermal Management of Travelling Wave Tube Amplifiers</i>	
Himanshu Shukla (Space Application Centre, SAC-ISRO, India), Sharad Shukla (Space Application Centre SAC ISRO, India), Vimal Shah (Space Application Centre SAC ISRO, India)	1188
<i>MINEGUARDIAN: IoT Enabled Advanced Sensor Integration for Mine Safety Enhancement</i>	
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)	1192
<i>Side Lobe Reduction of Time Modulated Elliptical Antenna Array Using GA and PSO Algorithm</i>	
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)	1196

# Technologies for CAN/CubeSat

## *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) .....	1200
--	------

## *Design and Development of a Functional CANSAT Model for Atmospheric Data Collection*

Maelona Maxim Vas (National Institute 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) .....	1204
---	------

## *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) .....	1208
--	------

## *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) .....	1213
---	------

## *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) .....	1217
---	------

## *KL SAT -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 Srivaran Reddy (K L University, India), Sarat Kotamraju (K L University, India), Sri Kavya K. Ch. (K L University, India) .....	1222
--	------

# SPACE-OLS

## *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)) .....	1226
--	------

## *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)) .....	1230
--	------

## *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) .....	1234
--	------

## *Controller Design for High Gain Converters Having Non-Minimum Phase Issues*

Preeti Sharma (BITS Pilani, India) .....	1239
--	------

## *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) .....	1244
---	------

## *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) .....	1248
---	------

## *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) .....	1252
--	------