2020 URSI Regional Conference on Radio Science (URSI-RCRS 2020)

Varanasi, India 12 – 14 February 2020



IEEE Catalog Number: C. ISBN: 97

CFP20J67-POD 978-1-7281-5571-5

Copyright © 2020, Indian Radio Science Society (InRaSS) 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:
 CFP20J67-POD

 ISBN (Print-On-Demand):
 978-1-7281-5571-5

 ISBN (Online):
 978-908-25987-8-0

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 Web: www.proceedings.com



Proceedings of the 2020 URSI Regional Conference on Radio Science (URSI-RCRS), held at IIT (BHU), Varanasi, 12-14 February, 2020

Table of Contents

- RF Propagation Characteristics of Y-shaped Coupler for Millimeter-Wave Gyro-TWT AKASH and Muthiah Thottappan pp1-4
- A wideband metamaterial absorber based on multiple interference model for mid-infrared applications -Nilotpal, Somak Bhattacharyya and P. Chakrabarti pp5-7
- 3. Wideband terahertz cross polarization converter based on parallel strip metasurface Bhavana R Nair, Nilotpal, Anu Mohamed, Chinmoy Saha and Somak Bhattacharyya pp8-11
- 4. Systematic Investigation of Silicon Micromachined Waveguide Structure & Designing Passive Components out of it for THz Application Vaibhav Adhikar, Ayan Karmakar and Chinmoy Saha pp12-16
- 5. Information Transfer by Surface-Plasmon-Polariton Wave Propagating on Silver/Silicon Interface Rajan Agrahari, Akhlesh Lakhtakia and Pradip Kumar Jain pp17-20
- Parasitically coupled microstrip patch antenna for DCS and WLAN applications Sowmiyadevi Appusamy,
 Phalguni Mathur, Athira Raveendran and Sujith Raman

 pp21-24
- Comparison of Time & Frequency Sources using NavIC Signals Anu Arora, Suresh Dakkumalla and T Subramanya Ganesh pp25-29
- 8. Estimation of Total Electron Content using NavIC Signals Anu Arora, Suresh Dakkumalla,T Subramanya Ganesh, Sharda Vashisth and Amitava Sen Gupta pp20-36
- 9. Neutral hydrogen distribution in the post reionization era through gravitational lenses Urvashi and Prasun

 Dutta pp37-39
- Substrate Integrated Waveguide Cross-Coupled Bandpass Filter With Wide-Stopband Amit Ranjan Azad and Akhilesh Mohan pp40-43
- 11. Substrate Integrated Coaxial Line Excited Wideband Millimeter Wave Bow-Tie Antenna Naman Baghel and Soumava Mukherjee pp44-48
- 12. Seasonal Variation of Day and Night Land Surface Temperature with Normalized Difference Vegetation Index using MODIS Satellite Imagery Ruchi Bala, Vijay Pratap Yadav and Rajendra Prasad pp49-52
- Detection of Coronal Holes Using Hough Simulated Parameterized Online Region-Based Active Contour Method - Sanmoy Bandyopadhyay, Saurabh Das and Abhirup Datta
- NRD to Microstrip Transition Using PLA Dielectric Material Budhaditya Bhowmick, Arpit Kumar Baranwal and Nagendra P. Pathak pp57-60
- 15. Design and Analysis of Front-End Circuits at 47 GHz using Additive Printing Technology Budhaditya Bhowmick, Arpit Kumar Baranwal and Nagendra P. Pathak pp61-64
- 16. A preliminary study of Amplitude and Phase scintillation over the Indian permanent scientific GPS station to understand L1 signal propagation through the ionosphere - Veera Kumar Maheswaran and James A. Baskaradas pp65-68

- 18. 4K UHD Video Streaming and Gigabit Data to an Unreachable Smart Home Using Millimeter Wave Radio Ardhendhu Shekhar Biswas, Samarendra Nath Sur, Rabindranath Bera and Monojit Mitra pp73-76
- Design of a Compact Half Mode SIW Based Power Divider for Ku-Band Application Priyanka Bhardwaj, S.
 Deivalakshmi and R. Pandeeswari pp77-79
- 20. Wind Profile Recovery in MST Radar Exploiting the Sparse Signal Structure Akankshya Bhatta, Sibi Raj B Pillai and T V Chandrasekhar Sarma pp80-83
- 21. A Unified Framework for Analysis of Polarimetric SAR Data Debanshu Ratha, Avik Bhattacharya and Alejandro C. Frery pp84-87
- 22. Contaminated effect of Geomagnetic storm on pre-seismic atmospheric and ionospheric anomalies during Imphal earthquake Sagardweep Biswas, Subrata Kundu, Soujan Ghosh, Sudipta Sasmal and Sandip Kumar Chakrabarti pp88-90
- 23. Modified Clover Arranged Reactively Loaded Dual Band Polarization Agile Omnidirectional Wire Antenna Ayona Chakraborty, Suman Dey, Samik Chakraborty and Bhaskar Gupta pp91-94
- 24. Design of helix slow wave structure for X band helix TWT using multi-dispersion Subhradeep Chakraborty, M K Alaria and S. K. Ghosh pp95-97
- 25. Assessment of the Performance of Ionospheric Models with NavIC Observations during Geomagnetic StormsSumanjit Chakraborty and Abhirup Dattapp98-101
- 26. A Cross-Dipole Shaped Patch-Slot-Patch Bandpass Frequency Selective Surface Raj Ratnam, Ambati Hemasree, Somnath Mahato, Surajit Kundu and Ayan Chatterjee pp102-104
- 27. RASCAL: Reflector Antenna Efficiency, System Temperature, Sensitivity Computation purpose Sougata Chatterjee, S Suresh Kumar and Anil N Raut pp105-108
- 28. Miniature Elliptical Waveguide Antenna Design Using Square Split Ring Resonator Sougata Chatterjee and S Suresh Kumar pp109-111
- 29. Slit Loaded E-Shaped Single Layer Broadband Rectangular Patch Antennas with High Gain and Low Cross Polarization T. Sarkar, Subhradeep Chakraborty, A. Ghosh, L. Lolit Kumar Singh and Sudipta Chattopadhyay pp112-115
- 30. Modal Behavior of Circular Sector Microstrip antenna: A Necessary Revisit Sudipta Chattopadhyay and Subhradeep Chakraborty pp116-119
- 31. High Gain and Wideband Antenna using Metasurface Horn and Metasurface Superstrate Avanish Yadav,
 Ashwani Kumar and Prashant Chaudhary pp120-122
- 32. High Gain Wideband Substrate Integrated (SIW) Slot Antenna with Horn Aperture for 5G Prashant Chaudhary, Ashwani Kumar and Avanish Yadav pp123-126
- 33. Stacked Pyramidal Shaped Half Cylindrical Dielectric Resonator Antenna for Wideband Wireless ApplicationsMonika Chauhan, Anil Rajput and Biswajeet Mukherjeepp127-130
- 34. Aperiodic Metasurface for Broadband RCS Reduction Shraddha Choudhary and Kirankumar R. Hiremath pp131-134

- 35. Numerical modeling of seasonal and diurnal variations of lower ionospheric reflection parameters based on IRI model - Swati Chowdhury, Subrata Kundu, Sudipta Sasmal, Tamal Basak, Suman Chakraborty, Soujan Ghosh and Sandip Kumar Chakrabarti pp135-138
- 36. Computation and Simulation of Cascaded Phase Noise for an FMCW Transmit Aradhana Kaintura and Abhishek Dabi pp139-142
- 37. A physically realized timescale combining five Cesium atomic clocks Suresh Dakkumalla, Aakanksha Avnish Bhardwajan, Anu Arora, Rajath Sadasivan and T Subramanya Ganesh pp143-144
- 38. Compact coupled-line microstrip bandpass filter with spurious passband suppression using Minkowski fractal
 Tarun K. Das and Sayan Chatterjee pp145-148
- 39. Metamaterial-based Vacuum Electronic Devices with Miniaturization Zhaoyun Duan, Xin Wang, Hengyu Luo, Xuanming Zhang, Zhanliang Wang, Huarong Gong and Yubin Gong pp149-150
- Brazing Failure Analysis in Single-Insulator Multi-stage Depressed Collector of TWTs Vishant Gahlaut, A.
 Mercy Latha and S. K. Ghosh
- 41. Multi-time Snapshot based Off-Grid DOA Estimation of Sparse Array Antennas using MFOCUSS Algorithm Saurav Ganguly, Jayanta Ghosh, Mainak Mukhopadhyay and Puli Kishore Kumar pp155-158
- 42. Design and analysis of Wideband Stacked Isosceles Triangular DRA Rinki Ghosal and Bhaskar Gupta
- 43. Asymmetric transmission and cross polarization conversion of linearly polarized wave through metasurface Meghna Mishra, Sambit Kumar Ghosh, Lavesh Nama and Somak Bhattacharyya pp162-165
- 44. Graphene-based metasurface for wideband linear to circular polarization conversion Sambit Kumar Ghosh, Somak Bhattacharyya and Santanu Das pp166-169
- 45. Travelling-Wave Tubes for Space Application: Present and Future S. K. Ghosh pp170-172
- 46. Surface Latent Heat Flux Anomaly: A thermal precursory effect of large Earthquake Soujan Ghosh, Sudipta Sasmal, Swati Chowdhury, Suman Chakraborty, Tamal Basak and Sandip Kumar Chakrabarti pp173-176
- 47. Dispersion Control of a Helix Slow-Wave Structure by I-shaped Metamaterial Loading for Wideband Traveling-Wave Tubes - Raktim Guha and S. K. Ghosh pp177-179
- 48. Improved Design of Ka band Waveguide to Coaxial Right Angle Microwave Transition Rahul Gupta and Punam Pradeep Kumar pp180-181
- 49. A Compact, T-Slotted Wide Band Microstrip Antenna with Defected Ground Structure for Future 5G Communications Surendra Kumar Gupta and Amit Bage pp182-185
- 50. Level Estimation with Radar Level Probe using Multipath Reduction Technique Arunkumar Heddallikar, Akshay Harish Rathod and Hitendra Pethkar pp186-189
- 51. Modeling of electrically tunable metamaterial embedded intersubband transitions in Gallium Nitride (GaN) High Electron Mobility Transistor (HEMT) for terahertz applications R K Kaneriya, Gunjan Rastogi, P K Basu, R B Upadhyay and A N Bhattacharya pp190-194

- 52. Inter-Comparison of satellite retrieved Aerosol Optical Depth (AOD) from geostationary and polar-orbiting platforms with ground-based measurements over a Semi-continental site of north-eastern India Parminder Kaur, Pranab Dhar, Barin Kumar De and Anirban Guha pp195-198
- 53. Comparative analysis of planar and spherical cathodes in gridded electron guns for Inductive output tubes Meenu Kaushik, Ayan Kumar Bandyopadhyay, Vishant Gahlaut and L M Joshi pp199-202
- 54. Design of Rectangular TE1,0 to Circular TE0,1 Mode Converter Sarah Farheen, Swappnal Panigrahi and Vishal Kesari pp203-206
- 55. Thermal Analysis for Effective Cooling of a Millimeter-wave Mirror Vishal Kesari, R. Sudhakar and R. Seshadri pp207-209
- 56. Study on Multiple Target resolving with in beam width using super resolution algorithmic approach in phased array radar Ariya Krishnan and V K Anandan pp210-213
- 57. Enhanced Gain Substrate Integrated Waveguide H Plane Horn Antenna for 5G Applications Abhay Kumar and Shweta Srivastava pp214-216
- 58. Frequency distribution of Aerosol Optical depth over Varanasi during 2011 Akhilesh Kumar, Vineet Pratap, Pradeep Kumar and Abhay Kumar Singh pp217-218
- 59. Effect on Aerosol Optical Depth during Diwali Festival in Varanasi, India Akhilesh Kumar, Vineet Pratap,
 Pradeep Kumar and Abhay Kumar Singh pp219-221
- 60. A Wideband Dual-Resonance SIW Cavity-Backed Slot Antenna for 5G Applications Amit Kumar, S. Bhaskar, A. K. Singh, A. Khan and Amit Kumar Singh pp222-225
- 61. Y-Shaped Antenna for 5G Enabled Gadgets and its MIMO for Smartphone Applications Anand Kumar, Santosh Kumar Mahto and Rashmi Sinha pp226-229
- 62. Dual Band Energy Harvester Based on Metasurface Absorber Aneesh Kumar R, Chinmoy Saha and Sethunadh R pp230-233
- 63. Electromagnetic analysis of ohmic quality factor of corrugated coaxial cavity structure for MILO Arjun Kumar,
 Prabhakar Tripathi, Smrity Dwivedi and Pradip Kumar Jain pp234-237
- 64. PIC simulation study of dielectric-filled S-band magnetically insulated line oscillator (MILO) Arjun Kumar, Prabhakar Tripathi, Smrity Dwivedi and Pradip Kumar Jain pp238-240
- 65. Instrumental calibration for observations of redshifted 21-cm signal from neutral hydrogen Jais Kumar,
 Prasun Dutta, Soumyadeep Das and Nirupam Roy pp241-243
- 66. Design of High Gain Circularly Polarized 2×2 Single Feed Elliptical Patch Antenna Array Rabindra Kumar, Neha Kumari and Priyanka Mondal pp244-245
- 67. Circularly Polarized Monopole Antenna with Modified Ground structure Yatendra Kumar, Ravi Kumar Gangwar and Binod Kumar Kanaujia pp246-249
- 68. Mapping and Prediction of Urban Area with Markov-CA Model using Landsat-8 Images for Effective Management of Urban Area in Prayagraj City Vikash Kumar Mishra and Triloki Pant pp250-254
- 69. Design of a High Performance Reflective Linear to Circular Polarization Converter with Wide Axial Ratio Bandwidth Debidas Kundu, Akhilesh Mohan and Ajay Chakrabarty pp255-257

- 70. Study the Ionospheric Total Electron Content (TEC) variation during Geomagnetic Storm in 24th Solar Cycle Subrata Kundu, Sudipta Sasmal, Suman Chakraborti and Sandip Kumar Chakrabarti pp258-261
- Gain Improvement of Ultra-Wideband antenna using compact Frequency Selective Surface Surajit Kundu pp262-265
- 72. Dual band printed wide-slot antenna for Wi-Fi and WLAN applications Yatish Pachigolla S S and Surajit Kundu pp266-268
- 73. Minkowski Fractal Parasitic Slot Antenna for Wideband Applications Ayyappan M. Nair and Pragati Patel
- 74. Low Cost GNSS Receiver RTK Performance in Forest Environment Somnath Mahato, Gopal Shaw, Atanu Santra, Sukabya Dan and Surajit Kundu, Anindya Bose pp273-276
- Metamaterial-Inspired Cavity backed CPW fed Dipole Slot Rectenna for UMTS and WiFi Applications Basudev Majumder, Vinnakota Sarath Sankar and Dinesh Kumar Gupta pp277-280
- 76. Study of July 2, 2019 South American Total Solar Eclipse effect on the ionosphere using GPS signal Ajeet Kumar Maurya and Mahesh N Shrivastava pp281-283
- 77. Effect of Vibration on the Cathode Lead of Electron Gun Assembly of the Travelling Wave Tube Chirag Mistry and S. K. Ghosh pp284-285
- 78. Isolation Enhancement of Antenna Pair for Implantable Application Moirangthem Santoshkumar Singh and Abhishek Sarkhel pp286-289
- 79. V2X Communication Test Bed for Smart Electrical Vehicle with 5G IOV Technology Susovan Mondal, Dalia Nandi and Rabindranath Bera pp290-293
- 80. Analysis of some important parameters of Si-Ge-Sn RCE-HPT exploiting QCSE and FKE Soumava Ghosh, Bratati Mukhopadhyay, Gopa Sen and P. K. Basu pp294-295
- 81. Asymmetric Coplanar Stripline fed Dual Band Monopole as Radiolytic Sensor Bhuvana Nair S, Shilpa P S, Sreedevi K Menon and Massimo Donelli pp296-299
- Large scale coherent density and velocity structure measurement in the Interstellar medium of NGC 5236 Meera Nandakumar and Prasun Dutta pp300-303
- 83. A Cavity-Backed Circular SIW Antenna for X-band Applications Battina Sindhu and Sourav Nandi pp304-306
- 84. Planar Asymmetric Single Split Left Handed Metamaterial Anila P V, Remsha M, Manoj M and P Mohanan pp307-309
- Meander Line and Loop Resonator Loaded Dual Band Electrically Small Antenna Jyotibhusan Padhi, Awanish
 Kumar and G. Shrikanth Reddy
- 86. Modeling & Simulation of 2-D Metamaterial Reflector Lens Antenna for Radio Astronomy Asit K. Panda pp314-317
- 87. Extreme High-Q Resonant Transmission through Aperture Cavity Array Arnab Pattanayak, Dhruval Shah and S. S. Prabhu pp318-319

- Dual-band Bandpass filter using SIW cavity with E-shaped DGS Sambaiah Pelluri, Muhammed Fasil, Debasish Mondal and M. V Kartikeyan pp320-322
- 89. Gain Enhanced Dual-Band Differential Fractal Slot Antenna for RF Energy Harvesting Applications Geriki Polaiah, Krishnamoorthy.K and Muralidhar Kulkarni pp323-326
- 90. Design of a Compact SIW Diplexer with Square Cavities for C-Band Applications Nrusingha Charan Pradhan, Karthikeyan Sholampettai Subramanian, Rusan Kumar Barik and Qingsha S. Cheng pp327-330
- 91. Pre-monsoon Study of Aerosol Parameters and Particulate Matters over Varanasi for 2017 Vineet Pratap, Akhilesh Kumar, Pradeep Kumar and Abhay Kumar Singh pp331-332
- 92. Seasonal Variability of Atmospheric Aerosols over Varanasi Region during 2010-2016 Vineet Pratap, Akhilesh Kumar, Pradeep Kumar and Abhay Kumar Singh pp333-335
- 93. Compact microstrip Wideband Band Stop Filter with folded stubs to increase coupling Anil Rajput, Monika Chauhan and Biswajeet Mukherjee pp336-339
- 94. Compact, Low-cost, Single-frequency NavIC Receiver Development Partha Rakshit, Sukabya Dan, Basudev Das, Atanu Santra, Somnath Mahato and Anindya Bose pp340-343
- 95. IRI-2016 model results during solar cycle-24 at low latitude station Dhanbad using TEC and foF2 S. S. Rao, Stuti Bharti and Abhay Kumar Singh pp344-347
- 96. Storm time PP fields effects and TADs modulations in TEC S. S. Rao, Stuti Bharti and Abhay Kumar Singh pp348-351
- 97. Challenges, Design and Realization of Photoconductive Antennas for THz Applications Chinmoy Saha pp352-354
- 98. Circularly Polarized Metallic Post Integrated Patch Antenna for Road Transport and Traffic Telematics Application at 5.8 GHz DSRC Band Susamay Samanta, Kaushik Mandal, P Soni Reddy and N Nasimuddin pp355-358
- 99. Design of a Printed Triangular Patch Antenna Loaded with Novel Trident-Shaped Metasurface and Defected Ground Plane Apratim Chatterjee, Dweepayan Sen Sharma, Diptiranjan Samantaray, Chittajit Sarkar, Chinmoy Saha and Somak Bhattacharyya pp359-362
- 100.Gain Enhanced Quad-Band AMC Backed Printed Antenna with Fractal Geometry Anand Krishnan M J,
 Diptiranjan Samantaray, Anu Mohamed, Chinmoy Saha and Somak Bhattacharyya pp363-366
- 101.A Superstrate-based Metasurface Antenna for Dual Band Application Diptiranjan Samantaray and Somak Bhattacharyya pp367-370
- 102. Gain Enhancement of Yagi Slot Antenna using AMC Substrate Krishna Chandran P L, Diptiranjan Samantaray, Anu Mohamed, Chinmoy Saha and Somak Bhattacharyya pp371-374
- 103.A Low-cost Approach towards Ionospheric Probing Using Compact GNSS Receivers Atanu Santra, Sukabya Dan, Somnath Mahato, P. Banerjee, Surajit Kundu and Anindya Bose pp375-378
- 104.On Nonpropagating Energy Around Antennas: Insights From the Theory of Radiation by Accelerated Charges
 Debdeep Sarkar, Said Mikki and Yahia Antar

 pp379-382

- 105.On the Design of Four-Element Pattern Diversity MIMO Antennas for Mutual Coupling Reduction Debdeep Sarkar, Said Mikki and Yahia Antar pp383-385
- 106.FMCW Radars for Volume Scattering from Precipitation Supantha Sen, Anand Kalwar, K.J Vinoy, T.V Prabhakar and V Chandrasekar pp386-389
- 107.DC Analysis of Space Traveling Wave Tube Atmakuru Nagaraju, Abhay Shankar and S. K. Ghosh
- 108.A Novel Approach of Texture Description using DWT and GLCM on Digital Images Jitendra and Triloki Pant pp392-395
- 109.Performance Improvement of Double Side-cavity Gridless Reltron by Dual Extraction Sections Soumojit Shee,
 Prabhakar Tripathi and Smrity Dwivedi pp396-399
- 110.A Novel Configuration of Stepped Rectangular Printed Monopole Antenna for UWB Applications Sumon Modak, Taimoor Khan and Rabul Hussain Laskar pp400-403
- 111.Design and Performance Comparison of Printed Monopole Antennas with Elliptical Radiator for UWB Applications Partha Pratim Shome, Taimoor Khan and Rabul Hussain Laskar pp404-407
- 112.A Pentagon-Shaped Microstrip Patch Antenna with Slotted Ground Plane for RF Energy Harvesting Daasari Surender, Taimoor Khan and Fazal Ahmed Talukdar pp408-411
- 113.RF Energy Harvesting for GSM and Wi-Fi Band Gargi Shukla, Sakshi Verma, Abhay Sao, Sriyuta Srivastava and Shrivishal Tripathi pp412-415
- 114. Shape Identification of Target Behind Wall Using Fourier Descriptor and Morphology Akhilendra Pratap Singh, Smrity Dwivedi and Pradip Kumar Jain pp416-419
- 115.An Approach To Estimate Wall Parameters Using Genetic Algorithm And Time-domain Reflection Method For Through-Wall Imaging Akhilendra Pratap Singh, Smrity Dwivedi and Pradip Kumar Jain pp420-423
- 116. Design of Printed Dipole Antenna for Enhanced Coverage Efficiency Anchal Singh, Jitendra Meena, Naman Baghel and Soumava Mukherjee pp424-429
- 117.Design and Simulation of Wide-Band Multi-Disc RF Window for Gyrotron Travelling Wave Amplifiers Anshu Sharan Singh and Muthiah Thottappan pp430-432
- 118. Modelling and Simulation study for varying Refractive index of a cavity in a Dielectric Whispering Gallery Mode Resonator in THz regime Anushree Singh, Himanshu Gohil and S. S. Prabhu pp433-434
- 119.Design and Investigation of Lateral HfO2/SiO2 Gate Stacked TFET on SELBOX Substrate for Low Power and High-Frequency Applications A. K. Singh, M. R. Tripathy, K. Baral, P. K. Singh and Satyabrata Jit pp435-438
- 120.CRLH Transmission Line Based Compact Metamaterial Inspired Antenna for Wi-MAX Applications Raghvenda Kumar Singh and Ashish Gupta pp439-442
- 121.Constraints on Line Parameter for the Practical Realization of DIFM Shailendra Singh, Sandesh N J, Niraj Srivastava and Manjunath R pp443-445
- 122.A Compact Multiband RF-Energy Harvesting System using Mutual Coupling Exploitation Shantanu, Harsh Verdhan Singh and Shrivishal Tripathi pp446-449

- 123.Human micro-Doppler intensity transformation for gait velocity estimation Vineet Singh, Somak Bhattacharyya and Pradip Kumar Jain pp450-453
- 124.CPW-Fed Pentagonal Superwideband Fractal Antenna Deepshikha Lodhi and Sarthak Singhal pp454-457
- 125.Compact Superwideband Terahertz Antenna Sarthak Singhal
- 126.Design of Wideband Patch Antenna with Compact CPW Feeding Network for L-Band Applications S. Ashok Kumar and T. Shanmuganantham pp462-465

pp458-461

- 127. Scalp Implantable Antenna for Biomedical Applications S. Ashok Kumar and T. Shanmuganantham pp466-469
- 128.Lattice Reduction Aided Receiver for mmWave Massive MIMO System Samarendra Nath Sur and Rabindranath Bera pp470-472
- 129. Modeling the Ionosphere Using Extended Spherical Harmonics Approach for Generation of IRNSS/NavIC based Precise Ionospheric Maps/Products (NPIM) over Indian Region Rethika T, Kartik A and Nirmala S pp473-476
- 130.Compact High Efficiency X-band Pulsed Helix-TWT for Airborne Radar Talur Chanakya, P Raja Ramana Rao, R. Venkateswaran, U V Chandramouli, V P N Sriram, S Senthil Kumar and Subrata Kumar Datta pp477-480
- 131. Single Chip Broadband Testset for Network Analyzers Shubham Tirmanwar and Debapratim Ghosh
 pp481-484
- 132. Simulation Study of C-band Arletron with Extraction of Microwave Power in TE10-Mode Prabhakar Tripathi, Arjun Kumar, Soumojit Shee, Smrity Dwivedi and Pradip Kumar Jain pp485-488
- 133.Study of Temperature Sensitivity on Linearity Figures of Merits of Ge/Si Hetero-Junction Gate-Drain Underlapped Vertical Tunnel FET with heterogeneous gate structure for Improved Device Reliability Manas Ranjan Tripathy, Ashish Kumar Singh, Kamalaksha Baral, Prince Kumar Singh, Ashwini Kumar Mishra, Deepak Kumar Jarwal and Satyabrata Jit pp489-492
- 134.Convection Vertical Structure during dry and wet spells of Monsoon over the Western Ghats of India Bhowmik Utsav, Sachin Deshpande, Subrata K. Das, Govingan Pandithurai and Dev Niyogi pp493-496
- 135.Extraordinary transmission analog for enhancing radiation from an electrically small radiator Sarin V.P, Vinesh P.V, Manoj M, Aanandan C.K, P Mohanan and Vasudevan K pp497-500
- 136.A Comparative Study of Position Uncertainty in NavIC and GPS Kartikay Saini, Raisy C D, Preeti, Sharda Vashisth and Amitava Sen Gupta pp501-503
- 137.Cross-Polarisation Discrimination (XPD) Model due to rain at 20 and 30 GHz LOS link for Indian Tropical Climate
 Arun Kumar Verma, Ranbir Nandan and Aditi Verma pp504-507
- 138.Performance Estimation of ARIMA Model for Orographic Rainfall Region Pooja Verma and Swastika Chakraborty pp508-511
- 139. Now casting of Orographic Rain Rate Using ARIMA and ANN Model Pooja Verma and Swastika Chakraborty pp512-515

- 140.Design of Front-End Modules for MM wave 5G Communication KJ Vinoy, Puneeth Yogananda, Athul Parameswaran, Amol Bhindwale, Keerthipriya Sathish, Sankar M. and Alok Kumar Gupta pp516-518
- 141.Precise Time Transfer Through Optical Fibre Utilizing White Rabbit Network Neelam, M. P. Olaniya, H. Rathore, L. Sharma, A. Roy, S. De and S. Panja pp519-522
- 142.Prospective Design of Dual Band Graphene-Based Patch Antenna for Mid-THz Band Vinit Singh Yadav, Anil Kumar Nayak, Sanjeev Kulshrestha, Brajesh Kumar Kaushik and Amalendu Patnaik pp523-526
- 143. Plasma Waves in and around the Moon Vipin K. Yadav

pp527-530

144.Photonics-based radar hardware circuit analysis of 1300nm and 1550nm multiplexing "4 channel" optical fiber link using WDM techniques - Suresh Kumar and Daraksha Shama pp531-535