2020 International Symposium on Antennas & Propagation (APSYM 2020)

Cochin, India
14 – 16 December 2020



IEEE Catalog Number: CFP20H98-POD ISBN: 978-1-6654-1939-0

Copyright © 2020 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:
 CFP20H98-POD

 ISBN (Print-On-Demand):
 978-1-6654-1939-0

 ISBN (Online):
 978-1-6654-1938-3

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



Contents

Vice-	Chancellors's Message	ii
Prefa	ce	iv
Chair	rman's Message	\mathbf{V}
Our 7	Tribute to Great Pioneers	vi
Advis	sory Committee	vii
APSY	VM 2020 Committee	viii
	nical Programme Committee	ix
_	nizing Committee	X
Memb		xi
Ackno	owledgements	XII
	Technical Session – 1: Antennas 1	
1.	Frequency Reconfigurable Hemispherical Dielectric Resonator Antenna Using Dual Split Rings Anu A R, Abdulla P, Jasmine P M and Rekha T K	3
2.	Multiband Reflection and Transmission mode Linear to Circular Polarizer integrated Microstrip Patch Antenna Priyanka Das and Kaushik Mandal	7
3.	High Gain Elliptically Tapered Antipodal Vivaldi Antenna With Tooth Shaped Dielectric Lens Athul O Asok and Sukomal Dey	11
4.	Simple and Compact Antenna with Enhanced ARBW Using Unsymmetrical Modified Slotted Ground Neha Singh and Saurabh Kumar	15
5.	Design, Development and Realization of UWB Antenna for Wireless Capsule Endoscopy Rajeev Mulugu and Chinmoy Saha	19
	Technical Session – 2: Antenna Arrays and Applications	
6.	Enhancement in Dual Polarization Phased Array Antenna Performance and Calibration Techniques for Weather Radar Applications Steffy Benny and Swaroop Sahoo	25
7.	Isolation Improvement of the MIMO PIFA using Metamaterial Absorber Array Manpreet Kaur and Hari Shankar Singh	29

8.	A Multi-band 5G Antenna for Smart Phones Operating at Sub-6 GHz Frequencies Prajwal Patnaik , Debdeep Sarkar and Chinmoy Saha	32		
9.	Four Element MIMO Antenna System Based on SRR Loaded Printed Monopoles for 28/38 GHz 5G Applications Rahul.C, Debdeep.S, Debarati.G, Chinmoy.S, J.Y.Siddiqui and Yahia M.M. Antar	36		
10.	Optimization of Patch Antenna Array Mounted on a Cylinder for Launch Vehicle Applications Manoj Joseph, S. Femina Beegum and K.K.Mukundan	40		
	Technical Session – 3: Antennas 2			
11.	Planar Antenna with Rectangular Parasitic Patch and Strip for Ultra- wideband Applications Balajee R S and Sudeep Baudha	47		
12.	Multi-Port Driven Frequency Scanning Antenna System for High PAPR Signals Gopika R and Chinmoy Saha	51		
13.	A Compact Triple-Band Circularly Polarized Slot Antenna for MIMO System Deven G. Patanvariya and Anirban Chatterjee	54		
14.	Improved High Gain Vivaldi Antenna Design for Through-wall Radar Applications Anila Kuriakose, Treesa Angel George and Anand S	58		
15.	Rectangular Meandered Wire Inverted F Antenna for UHF Applications S. Femina Beegum, Thomas Chacko and K.K. Mukundan	62		
Technical Session – 4: Electromagnetic Applications and Emerging Technologies				
16.	A Miniaturized Electromagnetic Invisibility Cloaking Scheme Sarin V.P, Vinesh P.V, Manoj M and Vasudevan K	67		
17.	Prediction of Complex Permittivity of Polar Liquids Using Regression Based Artificial Neural Network Thushara.H.P, Mridula.S, Anju Pradeep and P.Mohanan	71		
18.	Non-Linearity Compensation Algorithm for FMCW SAR Anindya Ghosh and Debashish Chakravarty	75		

19.	Application of a Cylindrical Dielectric Resonator as an Angular Displacement Sensor Premsai Regalla and A.V. Praveen Kumar	79
20.	Microwave Analysis on Bone Mineral Density Shilpi Ruchi Kerketta and Debalina Ghosh	83
	Technical Session – 5: Meta-surfaces and Metamaterial Structures	
21.	Reconfigurable All Dielectric 3D FSS Filter Priyanka Das and Kaushik Mandal	89
22.	Broadband Linear-Cross Reflective type Polarization Converter for X and Ku-band Applications Mohammad Abdul Shukoor and Sukomal Dey	93
23.	Broadband Polarization Insensitive Angular Stable Cross Dipole Loaded Circular Ring Circuit Analog Absorber (CAA) for X to K-Band Applications	97
	Mohammad Abdul Shukoor and Sukomal Dey	
24.	EBG Superstrate Loaded Circularly Polarized Fabry-Perot Cavity Antenna at Sub-6 GHz for Satellite and 5G Cellular Communications Soumik Dey and Sukomal Dey	101
25.	Dual-Band Flat-Top Pattern Synthesis Using Phase Gradient Metasurface	105
	Vinod Kumar P and Basudeb Ghosh	
	Technical Session – 6: Microwave Circuits	
26.	35 GHz Prolonged Stopband Lowpass Filter using Multi-Resonator Structure Nisamol T. A, Abdulla P, Raphika P. M, Jasmine P. M and Rekha T.	111
	K	
27.	Microstrip and SIW based Monopulse Comparators for Microwave and Millimeter Wave Applications	114
	Soumik Dey and Nandipati Sai Kiran	
28.	A Novel CR/L-H Transmission Line based Bandpass Filter for sub 6 GHz 5G Sathighkannan P. Sowfia M. Sujith Raman and Capilgrights M.	118
	Sathishkannan P, Sowfia M, Sujith Raman and Gopikrishna M	

29.	A quasi-elliptic Band Pass Filter designed using quadruplet metamaterial resonators for operation in the 3 GHz (5G) Band Sathishkannan P, Sajeev K.F, Sujith Raman and Gopikrishna M	122
30.	A Highly Efficient Energy Harvesting Circuit Using Luneburg Lens Shankhadip Mandal and Basudeb Ghosh	126
31.	Design of Stepped Impedance Stub Loaded Wide-Band 90-Degree Phase Shifter Anindya Ghosh and Debashish Chakravarty	129
Invite	ed Talks	132
Autho	or Index	143
Subje	ct Index	144