2020 37th National Radio Science Conference (NRSC 2020)

Cairo, Egypt 8 – 10 September 2020



IEEE Catalog Number: CFP20427-POD ISBN: 978-1-7281-6820-3

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:
 CFP20427-POD

 ISBN (Print-On-Demand):
 978-1-7281-6820-3

 ISBN (Online):
 978-1-7281-6819-7

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



Table of Contents				
	an University in Cairo (GUC)	viii xi		
Welcome to NRSC2020 at GUC				
	NRSC2020 Conference Scope			
	cise Report on the Activities of Egypt's National URSI Committee (NRSC) 37th National Radio Science Conference (NRSC) Committees	xiv xvii		
	37th National Radio Science Conference Board of Referees	xviii		
	ed Egyptian Pioneers of Radio Science in NRSC2020	xix		
	2020 Program Summary	xxiv		
	2020 Technical Program	xxvii		
	acts of Keynote Speeches			
KS-1	Fully Printed Radio Frequency Electronics: Flexible, Wearable and Disposable	KS-1		
KS-2	New Dimensions to Stretch the Limits of LORA-Based Modulation	KS-2		
KS-3	1 9	KS-3		
	act of Plenary Session	DO 4		
PS-1	,	PS-1		
Comm	APPLICATION: PERSPECTIVES OF SURVEILLANCE RADAR SYSTEMS mission B: Fields and Waves			
B1	Meander Dipole Antenna for Low Frequency Applications	1		
ы	Mohamed Ismail, Angie Eldamak, and Hani Ghali	1		
	World Istricti, Angle Liddhak, and Harif Chair			
B2	Angular Displacement Sensor Based on Planar Circular Split Ring	9		
	Resonator			
	Esraa El-Refaay, Hend Malhat, and Saber Zainud-Deen			
В3	Graphene-Based AMC Polarization Converter for Antenna Applications	16		
	at Microwave Frequency Band			
	Ahmed Mabrouk, Saber Zainud-Deen, Hend Malhat, Ahmed A. Ibrahim, and			
	Hesham Hamed			
В4	Bandwidth Enhancement For Meander Dipole Antenna in MHz range	24		
54	Mohamed Ismail, Angie Eldamak, and Hani Ghali	27		
	monamou roman, rungio Eraaman, ana mam Onan			
B5	Synthesis of Circular Antenna Arrays for Realization of Broadside	30		
	Chebyshev Linear Array Patterns in the Elevation Plane			
	Amr Hussein, Lamia Alnaggar, and Moustafa Abdelnaby			
В6	Flexible Patch Antennas on Filter Paper Substrate for Biosensing	41		
	Applications			
В7	Angie Eldamak, and Elise Fear Mutual Coupling Reduction Between MM-Wave Microstrip Antennas	48		
Б1	Using CSRR Metamaterial Structure	40		
	Allam Ameen, Basma Yousef, and Ahmed M. Attiya			
В8	Polarization Reconfigurable Dielectric Resonator Antenna Based on	N/A		
	Liquid Flow Control			
	Hend Malhat, and Saber Zainud-Deen			

	Metasurface Mona Badawy, Saber Zainud-Deen, and Hend Malhat	
Comi	mission C: Radio-Communication Systems and Signal Processing	
C1	Channel Estimation Techniques for Wideband MIMO- OFDM Communication Systems using Complementary Codes Two-Sided Sequences Said El khamy, Noha Korany, and Hossam Hassan	74
C2	Adaptive Femtocell Accessing Control in a 5G Heterogeneous Network Maryhan Mohamed, Hesham El-Badawy, Reem Abdelhadi, and Abdelhady Ammar	85
C3	Security Enhancement of Stream Cipher Algorithms in Advanced Mobile Communications Zakaria Abd Elwahab, Talaat Elgarf, and Abdelhalim Zekry	N/A
C4	Application of Artificial Neural Networks to the Automation of Bandgap Reference Synthesis Nabil Soliman, Karim Khalil, Ahmed Abd El Khalik, and Hesham Omran	106
C5	Improvement Joint Detection and Tracking of Small RCS Targets from Image Observations Ibrahim Salim, Mohamed Barbary, and Mohamed Hassan	N/A
C6	Single Image Super Resolution using Discrete Cosine Transform Driven Regression Tree Yasser Badran, Gouda Salama, Tarek Mahmoud, Aiman Mousa, and Adel Moussa	128
C7	Complexity Reduction of Finite-Length MMSE Equalization Using FFT Michael Ibrahim	137
C8	Application of Wireless Sensor Networks Localization in Near Ground Radio Propagation Channel Weaam Taha, Hala Nafea, and Fayez Zaki	145
C9	An Energy Efficient Constraint RRH to BBU Association in Cloud Radio Access Networks Hadil Hesham, Mohamed Ashour, and Tallal Elshabrawy	155
C10	Channel Matched Sparse Non-Orthogonal frequency division multiplexing (CM-S-NOFDM) Operating in Underwater Acoustic	163

B9 Radar Cross-Section Reduction Using Polarization Conversion

66

	Dalia Mohamed, and Said El-Khamy			
C11	A Novel Monopole Antenna for 60 GHz mmW Communications Tarek Mneesy, Radwa Khalil, Amira Zaki, and Wael Ali	N/A		
Com	mission D: Electronics and Photonics			
D1	Design of CMOS Low Noise Amplifier using an Automated System-on- Chip Methodology Ibrahim Abdalla, Kawther Arafa, Fathi Farag, and Mohamed Ibrahim	181		
D2	Enhanced Radon Transform based Video Micro Movement Magnification Gamal Fahmy, Mamdouh Fahmy, and Omar Fahmy	N/A		
D3	A low power Charge Steering Based Frequency Divider Mohamed Salah, Emad Hegazi, and Mohamed ElNozahi	197		
D4	High-Speed Comparator Design for RF-to-Digital Receivers Radio Applications Ahmed Sakr, Aziza Hussein, Mahmoud Abdelghany, and Ghazal Fahmy	207		
D5	Tunable Microwave Single-Bandpass Photonic Filter Based on Amplified MEMS-Based Gires-Tournois Interferometer Hussein Kotb, Yasser Sabry, Mohab Abdallah, Marwan Sayed, and Haitham Omran	216		
D6	Optical Cavity with Large Operational Bandwidth using Silicon-Based Slotted Micromirrors Mohab Abdallah, Yasser Sabry, Ahmad Mahfouz, Frédéric Marty, Tarik Bourouina, Haitham Omran	222		
D7	Reliability Analysis Model of the Digital Reactor Protection System Amany Saber, Mohamed Shaat, Marwa Shouman, Hanaa Torkey, and Ayman El-Sayed	230		
D8	Expert Guided Analog Layout Placement and Routing Automation for Deep Nanotechnologies Fady Atef, Mohamed Dessouky, Sherif Ahmed, and Soha Hamed	240		
Commission K: Electromagnetic in Biology and Medicine				
K 1	Automated Diabetic Retinopathy Grading using Convolutional Neural Networks	248		

Channels

Doaa Elswah, Ahmed Elnakib, and Hossam El-Din Moustafa

K2	New approaches to handle missing values for accurate diabetes prediction using machine learning	N/A
	Elhossiny Ibrahim, Marwa Shouman, Hanaa Torkey, Ezz El-Din Hemdan, and Ayman El-Sayed	
K3	A Miniaturized Dual Band Rectangular Spiral Loop Antenna for Biomedical Implants	264
	Abdullah Mahfouz, Ali Ibraheem, and Osama Haraz	
K4	Microstrip Patch Antenna with Improved Characteristics for Brain Tumor Detection	N/A
	Rehab Helmy, Ahmed Elkorany, Adel Saleeb, and Nihal Areed	
K5	Automatic Detection of Exudates and Hemorrhages in Fundus images Mohamed Berbar	277
K6	A novel Feature Selection Method for Enhancing Cancer Diagnosis based on DNA Microarray	285
	Mostafa Atlam, Hanaa Torkey, Hanaa Salem, and Nawal El-Fishawy	
K7	Deep Joint Segmentation of Liver and Cancerous Nodules from CT Images	296
	Nermeen Elmenabawy, Ahmed Elnakib, and Hossam El-Din Moustafa	
K8	Prediction of Epileptic Seizures: A Statistical Approach with DCT	302
	Compression	
	Nancy El-Fequi, Amira Ashour, Entessar Gemeaa, and Fathi Abd El-Samie	
Autho	ors' Index	314