2024 IEEE International Conference of Electron Devices Society Kolkata Chapter (EDKCON 2024)

Kolkata, India
30 November - 1 December 2024

IEEE

IEEE Catalog Number: CFP24P61-POD
ISBN: 979-8-3503-7465-0

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: CFP24P61-POD
ISBN (Print-On-Demand): 979-8-3503-7465-0
ISBN (Online): 979-8-3503-7464-3

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

Table of Contents

Paper ID	Paper Title	Page No.
Welcome message from General Chair and General Co-Chair, EDKCON 2024		
1	**Investigation of Analog and Digital Performance for Gallium-Arsenide GS GAA FETs.**	1-6
	Sneha Singh, Shuvra Jyoti Bose, Abhishek Kumar and Rudra Dhar	
2	**Reliability Study of Interface Traps in Gate-All-Around Tunnel FET: A TCAD Simulation Approach**	7-10
	Rittik Ghosh, A.Provias, Tathagata Sau, Pragya, Saheli Sarkhel, Priyanka Saha	
3	**Theoretical Study of Optoelectronic Nanoparticles Optical Absorption Enhancement**	11-14
	Subhamoy Singha Roy, Spandan Karfa, Subham Sharma, Subha Ghosh	
4	**Examining the Effect of Size-Dimensional Nanoparticles on Susceptibilities in Two Dimension (2D)**	15-18
	Subhamoy Singha Roy, Spandan Karfa, Subham Sharma, Suva Ghosh	
5	**Nonlinear Molecular Quantum Dynamics in an En-tirely Nonhomogeneous DNA Chain Voltage**	19-22
	Subhamoy Singha Roy, Spandan Karfa, Subham Sharma, Suva Ghosh	
6	**Comparative Study of Performance Analysis on Secure DSSS Multiuser Detection Under Near-Far Environment**	23-28
	Tanajit Manna, Mohankumar N, Dhrubojyoti Banerjee, Shibabrata Mukherjee, Bidrohi Bhattacharjee and Heranmoy Maity	
7	**ASIC Flow Implementation on a 32-bit RISC-V Processor using Cadence**	29-33
	Mohammed Abdul Raheem, Mohammed Sabir Hussain, and Pathan Rehman Ahmed Khan	
8	**Integration of Metallic Moth-Eye Nanostructures for Enhanced Photovoltaic Efficiency in All-Inorganic Perovskite Solar Cells**	34-38
	Swagata Bankura and Abhijit Biswas	
9	**Study of Three-Subband Electron Mobility in AlGaAs based Semi-Non-Square Quantum Well Structures**	39-42

	Narayan Sahoo and Ajit Sahu	
10	**Horticulture 4.0: Transforming Agriculture with IoT-Based Need-Specific Irrigation** *Dushyant Kumar Singh, Reena Chandel and Simerjit Kaur*	43-46
11	**Systematic Optimization of $InBi_2S_4Cl$ Absorber Layer in Perovskite Solar Cells for Enhanced Photovoltaic Performance** *Nikhil Shrivastav, Sagar Bhattarai, Jaya Madan, Haider Alabdeli and Rahul Pandey*	47-50
12	**Bandwidth Improvement of Slits-Slots with DGS Circular Patch Antenna for Wireless Communication** *Neeru Kashyap, Shikha Verma, Archana Sandhu, Anukriti Sharma and Meenakshi*	51-55
13	**Comparative Analysis of Power Consumption and Transistor Current for 6T And 9T SRAM** *Kaushal Kumar, Abhay Tyagi, YashRaj Lata, Vinay Kumar, Ajay Kumar and Aditya Jain*	56-60
14	**Design of T-shape Tunnel FET with Enhanced Drain current Characteristics at 30nm Technology** *Ashutosh Yadav, Sweta Chander, Suman Lata Tripathi and Sanjeet Kumar Sinha*	61-66
15	**Asymmetrically doping dependent Nonlinear Electron Mobility in In0.53Ga0.47As/In0.52Al0.48As wide quantum well MODFET structure** *Sangita Panda, Manoranjan Pradhan, Trinath Sahu and Ajit Kumar Panda*	67-71
16	**Performance Analysis Of Magnitude Comparator Using An Adiabatic Technique** *Dharma Teja Lanka, Veera Krishna Badisa, Surya Prakash Devarapalli and Gopi Chand Chinthakayala*	72-76
17	**Performance Analysis of Biosensor Based on Inverted T shaped Junctionless FinFET** *Shekhar Verma, Suman Lata Tripathi, Vishal Narula, Nikhil Nikhil and Balwinder Raj*	77-82
18	**Predictive Modeling for Bandgap Tuning in Perovskite Solar Cells using Machine Learning** *Dipayan Chatterjee, Suman Panja, Swarupa Das, Sudeshna Kundu, Sowradeep Pal and Kanishka Majumder*	83-88
19	**An Integrated Framework for Real-time Analysis and Observability of Wireless Sensor Data Using AWS Edge Service Capabilities** *Saranga Mohan and Sunita Panda*	89-94
20	**Study the improved efficiency of the Lead-Free CsSnI3 Perovskite Solar Cells with variation of absorber layer in SCAPS-1D** *Arijit Kumar Barik, Himadri Sekhar Das, Sudipta Banerjee, Heranmoy Maity, Santanu Mishra and Mousam Chatterjee*	95-98
21	**Advanced Gas Sensor Design: A Machine Learning Perspective on Photonic Crystals** *Debjyoti Karmakar, Joydip Saw, Debashis Modak, Subhajit Pramanick, Suman Pal and Kanishka Majumder*	99-104
22	**Hardware Implementation of Two level Authentication Algorithm using Cryptography with Steganography for Text-Image Security**	105-110

	Poulomi Ghosh, Sudip Ghosh and Hafizur Rahaman	
23	**Investigation of FinFET with multi-channel structures on device characteristics** *Archana Singh, Manish Verma and Dhandapani Vaithiyanathan*	111-116
24	**DC Analysis of T shape gate, L shape gate, Y shape gate, Field-plate gate AlGaN/GaN based HEMT** *Lakhmikanta Mishra, G. N. Dash and Manasa Ranjan Jena*	117-120
25	**Chaotic Image encryption scheme implemented in FPGA for security enhance** *Pradipta Sarkar, Anup Kumar Das and Aloke Saha*	121-125
26	**A Novel ASK Reversible Gate and Its Implementation in Ripple Carry Adder Design** *Aruru Sai Kumar, Pokala Santhosh, Neelima Nimmagadda, Barama Veda Harshitha, D Suvarna Aishwarya Lakshmi and Katkam Shashi Vardhan*	126-131
27	**Securing the Future of Communication with Quantum Cryptography** *Parna Kundu, Sudipta Banerjee, Mousam Chatterjee, Himadri Sekhar Das, Aritra Bhowmik and Heranmoy Maity*	132-137
28	**Classifying the Tongue Contours for Assistive Devices** *Dasari Lakshmi Prasanna, Suman Lata Tripathi and Inung Wijayanto*	138-142
29	**Performance of HFo2 on High Electron Mobility Transistor Compatible for Microwave Applications** *Swati Dhondiram Jadhav and Aboo Bakar Khan*	143-147
30	**Enhancing Biosensing Sensitivity through Simulation-Based Study of N+ Pocket Doped Vertical NC-TFET** *Raj Kumar, Girdhar Gopal, Rajendra Mitharwal and Tarun Varma*	148-153
31	**Novel Sign-Magnitude Binary to Balanced-Ternary Encoder on Basys3 Artix7 FPGA** *Ashishit Anurag Daniel Tigga, Nishit Bayen, Suman Gorai, Pradipta Sarkar, Anup Das and Aloke Saha*	154-157
32	**Application of Machine Learning Approaches for Power Estimation of Digital VLSI Circuits at Register Transfer Level** *Chinmay Parmar and Manish I. Patel*	158-161
33	**Improved Deepmaxoutmodel for Disease Prediction in Healthcare IoT Cloud System** *Preetha Pandu and A Packialatha*	162-167
34	**An IoT-based Hardware System for Road Accident Detection and Notification using CNN-LSTM Algorithm** *Tanusree Chatterjee, Shibasish Dalui, Sanjib Roy, Rituraj Debnath and Avijit Mondal*	168-173
35	**Design and FPGA Implementation of an Efficient Squarer Circuit Using Reversible Logic** *Mihir Lal Saha, Debjit Roy, Agnik Maity, Antarik Sinha, Mili Sarkar and Amitava Ghosh*	174-178
36	**Unveiling Mental Stress: Examining the Impact on College Students' Well-being Using Machine Learning Based Solutions**	179-184

	Kanak Kumar, Anshul Verma, Pradeepika Verma and Suman Lata Tripathi	
37	**Advancing Solar Cell Efficiency: Performance Insights into Low Lead CsPb0.625Zn0.375I2Cl Perovskite Solar Cell** *Navdeep kaur, Jaya Madan and Rahul Pandey*	185-189
38	**Doping Dependent Electron Transport Mobility in Al0.3Ga0.7As/In0.15Ga0.85As Double Quantum Well Field Effect Transistor Structure** *Narayan Sahoo, Ajit Sahu and Ram Chandra Swain*	190-194
39	**Modulation of I-V Characteristics in U-Shaped Armchair Graphene Nanoribbon-based Tunnel Diode** *Narayan Sahoo, Simran Patra, Ajit Sahu, Madhusudan Mishra, and Deepak K. Naik*	195-198
40	**FPGA-BASED IMPLEMENTATION OF LIGHTWEIGHT BLOCK CIPHERS** *Koyel Naskar*	199-204
41	**NavIC Galileo long distance RTK positioning performance** *Somnath Mahato, Vijai Kumar, Abhishek Singh, Divyesh Deshpande, Anjit Anjan and Ashim Kumar Mitra*	205-208
42	**Temperature-based Routing Protocols for Wireless Body Area Networks (WBANs) : A Comparative Analysis** *Swati Goel, Kalpna Guleria and Surya Narayan Panda*	209-214
43	**Performance Analysis of a Heterojunction Dual Gate Ferroelectric Tunnel FET with variation of Gate Stack Dielectric combination** *Shib Sankar Das, Sudipta Ghosh and Subir Kumar Sarkar*	215-219
44	**Impact of Hole Gas in O2 sensing Applications in Ge Core Si Shell Nanowires: Quantum Simulation Study**	220-224
	Sharmistha Shee Kanrar, Komal Kumari, Abir Jana, Bhaskar Gupta, and Subir Kumar Sarkar	
45	**Performance Analysis of Multiplexer based Ternary Multiplier Designed Using FinFET models** *Mohit Kumar Goel and Kulbhushan Sharma*	225-229
46	**Time- Dependent Eikonal Solution using Physics- Informed Neural Networks** *Indrajit Das, Debjit Das, Abheepsa Bhattacharya, Papiya Debnath, Subhrapratim Nath and Manash Chanda*	230-235
47	**Solution of Allen – Cahn equation using Physics – Informed Neural Networks** *Indrajit Das, Debjit Das, Abheepsa Bhattacharya, Papiya Debnath, Subhrapratim Nath and Manash Chanda*	236-240
48	**Analysis of Tripple-Step Gate Field Plated AlGaN/GaN Based HEMT for High Power Applications**	241-245

	Sahil Kumar, Utkarsh, Swapnendu, Harsh Ranjan, Shashank Kumar Dubey, Soumak Nandi, Mukesh Kumar and Aminul Islam	
49	**Study on Deep Learning based Classification Models for Multiple Sclerosis in MRI Datasets** *Kamarujjaman, Srirupa Das, Joy Samadder and Jadav Chandra Das*	246-251
50	**Fringing Effects in a Capacitive Micromachined Ultrasonic Transducer with a SiC actuation Layer insulated by High dielectric material** *Sk.Sohel Ahamed, Moumita pal, Pritam Chakraborty, Biswarup Neogi, Niladri Maity and Reshmi Das*	252-257
51	**Enhancing Public Health Measures with AI and MobilenetV2 for Face Mask Detection** *Mangal Patil, Prajakta Naregalkar, Aparna Patil, Jyoti Morbale, Saloni Aggarwal, T. Snehitha Reddy, Divya Sharma, Nikhat Anjum, Raushan Kumar, Rahul Kumar Raj and Vijay Nath*	258-263
52	**Lateral Straggle Based Interface Trap Sensitivity in n-p-n SOI Double Gate TFETs** *Deepjyoti Deb, Saurav Nath, Prachuryya Das, Rupam Goswami and Ratul Baruah*	264-268
53	**Phase Correction using single Current feedback amplifier** *Rimpi Datta, Koushick Mathur, P. Venkateswaran and R. Nandi*	269-272
54	**Development of IoT based n-ZnO/p-rGO Nanohybrid H2 Sensor Node** *Swapan Das, Sunipa Roy, Chandan Kumar Sarkar, Rup Pratim Ghatak, Tanisa Halder and Bishwarup Choudhury*	273-278
55	**Study of thermal noise in InAsxSb1-x UTB MOS under sub-100 nm range** *Palasri Dhar, Sunipa Roy, Swagata Bhattacharjee and Sandipta Paul*	279-282
56	**Investigations on novel Dual Metal Gate-Vertical C-channel Nanosheet FET with fT of 268 GHz for beyond 5G application** *Angelin Delighta A, Binola K Jebalin. I.V, Ancy Michel, and D. Nirmal*	283-288
57	**Rapid detection of Biomolecules by Quarapul cavity extended source vertical Dielectric Modulated TFET (QESV-DM-TFET) Biosensor** *Nelaturi Nagendra Reddy, Bitra Jayalakshmi, Goli Srinivasa Rao, Deepak Kumar Panda, Sarankumar Ramasamy and Mandem Nomitha Reddy*	289-293

58	**Performance investigation of L-shaped extended source TFET based photosensor for near-infrared light sensing applications** *Chinna Baji Shaik, Anil Kumar. Pathakamuri, Kadava R. N. Karthik, Gorla Siva Rama Krishna, Ashok Tammisetti, Chandan Kumar Pandey and Umakanta Nanda*	294-297
59	**Performance Analysis of Double-Gate Junctionless Tunnel FET with a Stepped Channel** *Siva Ramakrishna Gorla, Anil Kumar. Pathakamuri, Kadava R. N. Karthik, Ashok.tammisetti, Chinna Baji shaik S, Chandan Kumar Pandey and Umakanta Nanda*	298-302
60	**Optimization of Doping Profile in Carbon Nanotube Field Effect Transistor** *Shuvra Jyoti Bose, Sneha Singh and Rudra Sankar Dhar*	303-307
61	**Supercapacitor-Based power delivery system to enhance the discharge duration for EVs** *Harleenpal Singh, Sobhit Saxena and Vikram Kumar*	308-313
62	**Double gate Tunnel FET with Core-Gate Engineering: An Effective Approach to Suppress Ambipolarity** *Meenu Sharma, Vanshika Ghai, Sidhartha Dash and Guru Prasad Mishra*	314-317
63	**Simulation of Adaptive Wavelet Packets in Spatial Domain for Signal Demodulation in Optical Frequency Domain Reflectometry** *Nandini Basumallick and Somnath Bandyopadhyay*	318-322
64	**Study on Optical Properties of Multiple Quantum Well-based InGaN/GaN Light Emitting Diode** *Devika Jena, Ajit K.Sahu, Sanghamitra Das and Narayan Sahoo*	323-326
65	**Comparative Study of MEMS Microheaters using distinct designs and materials for PCR applications** *Pallavi Patel, Vinod Belwanshi, Neela Chattoraj and Richa Mishra*	327-332
66	**Understanding and Enhancing Linearity in FinFET Biosensors for Biomolecule Detection** *Prasant Kumar Swain, Debasish Nayak, Prakash Kumar Rout, and Sudhansu Mohan Biswal*	333-336
67	**Synthesis of Graphite-Based Conductive Paint for Flexible Paper Electrode for Voltammetric Detection of Lawsone in Cosmetic Product** *Milan Dhara, Sanjoy Banerjee, Hemanta Naskar, Barnali Ghatak, SK. Babar Ali, Rajib Bandyopadhyay, Nityananda Das and Bipan Tudu*	337-342
68	**Design and study of the thermoelectric performance of mini cooler box using TEC**	343-348

	Shreya Adhvaryyu, Parimal Acharjee and Kalyan Kumar Mistry	
69	**Optimizing Triple Material Staggered Heterojunction Double Gate MOSFET (TM-SH-DGMOS) Through Advanced Gate Engineering**	349-352
	Prasant Kumar Swain, Kishore Chandra Singh, Biswajit Baral, and Sudhansu Mohan Biswal	
70	**Quasi Vertical FinFET with Step Graded Doping for Obtaining 0.037 mΩ.cm2 ON Resistance**	353-357
	Ancy Michel, Binola K Jebalin. I.V, Navin M George, Angelin Delighta A and D. Nirmal	
71	**Performance Investigation on Gate Stack Dual Material Double Gate MOSFET based Biosensor**	358-361
	Satish K. Das, Sudhansu M. Biswal, LalatIndu Giri and Umakanta Nanda	
72	**Enhanced Sensitivity in InAs Based Gate Stack TFET Biosensors: An In-Depth Investigation**	362-365
	Kishore Ch Singh, Prasanta Ku Khuntia, Satish Ku Das, Sudhansu M Biswal, Biswajit Baral and Sarita Misra	
73	**Design And Comparison of 4x4 Bit Multipliers Utilizing CMOS 45nm And FinFET Technology**	366-370
	Chirag Jain, Mohit Kumar Goel, Lipika Gupta and Kulbhushan Sharma	
74	**Linearity Characteristics of Gate-Stack DG-MOSFETs: A Study with Diverse Biomolecule Configurations**	371-374
	Pritipadma Mohanty, Kishore Singh, Sanjit Swain and Sudhansu Biswal	
75	**Analog/RF performance and reliability investigation of nanowire junctionless MOSFET with interface traps**	375-378
	Sarita Misra, Sudhansu Biswal, Satish Das, Kishore Singh and Kaliprasanna Swain	
76	**Polarization Engineering of the EBL to Produce Efficient AlGaN-based UV-C LED**	379-382
	Balkrishna Choubey and Kankat Ghosh	
77	**High Temperature Performance Analysis of AlGaN/GaN HEMT**	383-386
	Sanghamitra Das, Devika Jena, Eleena Mohapatra, Taraprasanna Dash and Aruna Tripathy	

78	**High-endurance contention-aware power optimized hybrid memory using clock gating memory** *Narayana Murty N, Harjit Singh and Sukhmani K. Thethi*	387-392
79	**Improvement in Toxic CO Detection Capabilities via Incorporating Pt Dopant into ZnO Nanotube based Gas Sensor Devices: An Atomistic Modeling** *Indranil Maity, Siddhartha Bhattacharya and Aheli Majumdar*	393-398
80	**A Comprehensive Sensitivity Analysis of Adenine Nucleobase on Pristine and Platinum-Decorated ZnO Nanosheets: An Interaction Dynamics** *Indranil Maity, Snehadri Bhaumik and Subhradeep Hazra*	399-404
81	**Customized Design and Optimization of New Materials in Silvaco TCAD Tool by Understanding Inherent Material Defining Processes and Useful Simulation Methods: An Extensive Study** *Indranil Maity and Arijit Mondal*	405-410
82	**Studies on navigational satellite visibility and signal strength of different GNSS sensor** *Debipriya Dutta, Somnath Mahato, Pritul Kumar Roy, Jeet Gorain, Soumya Kundu and Divyesh Deshpande*	411-414
83	**A transient enhanced capacitor less 380mA LDO with 1.2µA quiescent current** *Sayantan Samanta, Joydeep De, Srijit Mishra, Soumik Bandyopadhyay and Swarnil Roy*	415-419
84	**A Low Leakage Variations and High Stability 9T SRAM Cells** *Guguloth Anjaneyulu, M Durga Prakash, Mukku Pavan Kumar and Shams UI Haq*	420-425
85	**Design and Investigation of Ge Source Hetero-Dielectric L-shaped TFET for Low Power Applications** *Mukesh Kumar, Aditya chotali, Seema Singh, Jemma Jessy Kerketta, Chhavi Rani, Vashnavi Nenavath, Santashraya Prasad and Aminul Islam*	426-431
86	**Analysis of Interface Trap Position Variation in Tunnel FETs** *Anirudh Koteshwar, Deepjyoti Deb, Shanidul Hoque and Rupam Goswami*	432-435
87	**Attention-COVIDNet: An Enhanced COVID-19 Classification Framework using Attention Mechanism**	436-441

	Senthil Pandi S, Thomas Leonid, Suguna Devi R and Sathish Kumar Kannaiah	
88	**Effective Webshell Detection in IoT Networks employing TF-IDF, Word2Vec and SVM**	442-447
	Senthil Pandi S, Masoodhu Banu N M, Suguna Devi R and Sathish Kumar Kannaiah	
89	**Assessment of FinFET Performance and Its Biosensing Applications: A Review**	448-453
	R.Linie Sharon and A.Shirly Edward	
90	**Enhancing Safety in Automotive Systems: A Comprehensive Analysis of 77 GHz Radar Performance for Pedestrian and Vehicle Detection**	454-459
	A Usha Rani, Aggala NagaJyothi and Sarika Nair	
91	**Fabrication, Characterization and SPICE Simulation of Dropcasted Egg Albumin Memristors**	460-463
	Hirakjyoti Choudhury, Rupam Goswami and Raja Vipul Gautam	
92	**Performance Evaluation of Double Gate Junctionless Accumulation Mode Stacked Gate MOSFET.**	464-467
	Pradipta Jena, Srikrishna Bardhan, Sarita Misra, Sudhansu Kumar Pati, Biswajit Baral, and Sudhansu Mohan Biswal	
93	**Analog and High Frequency Analysis of Dielectric Pocket Engineered (DPE) 4H-SiC Based Dual Metal(DM), Gate-Stack (GS), ,Surrounding Gate, FET(DPE-4H-SiC-GSDM-SGFET) for GIDL Reduction**	468-473
	Neeraj, Shobha Sharma, Anubha Goel, Sonam Rewari, S S Deswal and R S Gupta	
94	**Junction-less Nanowire TFET with HfO2 /SiO2 stacked gate-oxide for highly sensitive biosensor**	474-477
	Mandalaneni Jaya, Rohit Lorenzo and Sudheer Prajapati	
95	**Effects of Gate Metal Engineering on Electrical Characteristics of SOI MOSFET**	478-481
	Sonam Khera, Neetu Gupta, Prashant Kumar, Lalit Rai, Neeraj Gupta and Rashmi Gupta	
96	**Predicting Tea Quality Based on Antioxidant and Polyphenol Content Using Ensemble Machine Learning Model**	482-487
	Pratyusha Chatterjee, Debajyoti Mitra, Tanima Bhowmik, Rosalin Nath, Kakoli Dutta, Arpan Deyasi	

97	**Generating Diverse Facial Expressions and Orientations from a Single Image Using Conditional Generative Adversarial Networks** *Roshan Rateria and Tanima Bhowmik*	488-493
98	**Accuracy Enhancement in Apple Leaf Diseases Detection and Classification Using VGG16** *Senthil Pandi S, Shanmugapriya S, Gethara Gowri C and Kumar P*	494-499
99	**Using Machine Learning to Predict Constant Obstructive Pneumonic Infection** *Kumar P, Vijayaraj A, Senthil Pandi. S and Venkatesh Prabhu Balakrishnan*	500-505
100	**A Study on Si-Si(1-x)Gex Nanowire Solar Cells using Monte Carlo Simulation** *Abir Jana, Sharmistha Shee Kanrar, Bhaskar Gupta and Subir Kumar Sarkar*	506-511
101	**Vivaldi Antenna with Reconfigurable Rectangular Slots** *Harish Sharma, Neeraj Gupta, Ved Prakash and Sukomal Dey*	514-518
102	**Design of second order low pass filter using inverter-based CMOS operational transconductance amplifier (OTA) through gm/ID Methodology** *Remya Jayachandran, Edet Bijoy Kumaradhas and Arun S*	519-524
103	**IoT-Driven Automated Hydroponic System for Climate-Independent Indoor Crop Cultivation** *Joy Samadder, Subhadip Roy, Somnath Mapa, Sagar Gharami, Jadav Chandra Das and Amit Ghosh*	525-530
104	**Performance analysis of MoS2/MASnI3/WSe2 based solar cell with more than 31% efficiency** *Tania Das, Ayan Das and Mihir Mahata*	531-535
105	**Exploring the Potential of AlGaN/GaN HEMT using TCAD Simulations for Next-Generation Biosensors** *Yashwant Singh, Ashish Kumar, Neeraj Gupta and Nisha Charaya*	536-541
106	**Advancements in Operational Transconductance Amplifiers (OTAs) for the Design, Applications, and Performance Optimization Techniques with hardware implementation** *Pramath V., Pavithra G., Swapnil S. Ninawe and T.C. Manjunath*	542-547

107	**Impact of Defects on the Electronic Properties of (8,3) and (7,5) Carbon Nanotube Heterojunction** *Achsah Gladith N and Anandan P*	548-552
108	**Impact of the Process Parameter Variation on Threshold Voltage of Short Channel Junctionless MOSFET** *Keka Biswas, Sumit Som, Papiya Debnath and Manash Chanda*	553-556
109	**Design of Power-Efficient Built-in Self-Repair for Interleaved Memory Systems** *Sowvik Dey and Amiya Karmakar*	557-561
110	**Design of Humanoid Hand with Adaptive Gripping Patterns using Vision Sensor** *Aishwarya Palit and Naiwrita Dey*	562-566
111	**A First-Principle Investigation of Sc-Doped MoS2 for Hydrogen Gas Detection** *Bibek Chettri, Bikash Sharma, Sanat Das, Pronita Chettri, Prasanna karki and Pema Rinzing Bhutia*	567-572
112	**A First-Principle Study to investigate Electrical and Optical Properties of Tin Oxide** *Nandita Sharma, Bikash Sharma, Sanat Das, Pronita Chettri, Prasanna karki, Roshan Pradhan, Bibek Chettri and Ashok Rao*	573-577
113	**DFT Study of P-Doped WSe2 Monolayer-Based VOC Sensor for Diagnosis of Lung Cancer** *Prasanna karki, Bikash Sharma, Sanat Das, Pronita Chettri, Ashok Rao and Bibek Chettri*	578-582
114	**Implementation of High-K Gate Dielectric in Cylindrical SOI Schottky Barrier MOSFET for Enhanced ION/IOFF Ratio** *Nitish uppal, Amit Saxena, Vandana Nath and R.S. Gupta*	583-586
115	**Design and performance analysis of low noise amplifiers: A review** *Saggurthi Spandana, Sk Hasane Ahammad and K Srinivasa Rao*	587-592
116	**Mapping Stress/Strain in Nanoscale FinFETs: Implications for Device Design** *Taraprasanna Dash, Jhansirani Jena, Devika Jena, K V Subbarao, Subhashree Choudhury and C K Maiti*	593-597
117	**Analysis of Stress and Strain Dynamics in Sub-7nm GAA Si- and SiGe-Channel Nanosheet FETs** *Taraprasanna Dash, Eleena Mohapatra, Jhansirani Jena, Sanghamitra Das, Subhashree Choudhury and C K Maiti*	598-602

118	**Junctionless Accumulation Mode Dual Gate Ferroelectric FET (JAM-DG-FE-FET) for High Cut-off Frequency Applications** *Sagar Gosai, Sonam Rewari, Deva Nand and M Ganesh*	603-606
119	**Field Effect Transistor Incorporating Negative Capacitance and Nanowire Structures for the Attenuation of Gate Leakage Phenomena** *Aapurva Kaul, Sonam Rewari and Deva Nand*	607-611
120	**A Comparative Power & Delay Analysis of Full Adder Designs in 90nm CMOS and 32nm & 5nm CNFET Technologies.** *Aniruddha Sen, Nitish Kumar Sah, Kousik Bhunia and Sumit Saha*	612-617
121	**New Locally-Active Memristor for Neuromorphic Application** *Parnab Das, Santanu Mandal, Mousami Sanyal and Soumyadip Chowdhury*	618-622
122	**Silicon Membranes for Microbolometers: Simulation and Fabrication Using Frontend Bulk Micromachining** *Nirupam Paul, Satish Bonam, Siva Rama Krishna Vanjari and Shiv Govind Singh*	623-628
123	**Spoonie: Self-Stabilizing Feeding Spoon For Tremored Hands** *Susmita Das, Ankit Kar, Hritabrata Ghosh, Priyanshu Das and Aniruddha Mitra*	629-633
124	**Effect of AlGaN Thickness Variation on the Analog Performance of a Normally-off AlGaN/GaN based Double Gate MOS-HEMT Device** *Souptik Mallick, Souryob Ghosh, Chirayush Chakraborty and Atanu Kundu*	634-638
125	**A µW Power CMOS Window Detector Circuit with Adjustable Thresholds for Low-Power Applications** *Uday Sannigrahi, Arkaprava Dash, Soham Banerjee, Koyel Mukherjee and Soumya Pandit*	639-643
126	**Analyzing the Analog performance of a Novel Normally OFF Double Gate MOS-HEMT due to Gate Length Variation** *Sudipta Talukder, Aditya Shaw, Chirayush Chakraborty and Atanu Kundu*	644-648
127	**Enhancing Ultrasonic-Based Distance Measurement Accuracy Through Error Correction Mechanism** *Abhijit Paul, Arjun Mitra, Prachi Bansal, Mudit Saraf, Bikash Debnat and Jadav Chandra Das*	649-654
128	**Performance Optimization of Thin Film Micro-Patterned Piezoresistive Low Pressure Sensor** *Sekhar Rana, Santanu Maity, Rathindra Nath Biswas and Mrinal Kanti Naskar*	655-660

129	**A Fully-Customized RTL to GDS Design and Verification of Low-Power Cache Memory** *Eleena Mohapatra, Sudeep Kumar Shetty, Sujatha Hiremath, Sanghamitra Das, Devika Jena and Taraprasanna Dash*	661-666
130	**Novel Modular Adder Using Thermometer Coding and One-Hot Coding for Residue Number Systems Applications** *Kancharla Vijaya Vardhan, Musala Sarada and Talasila Jahnavi*	667-672
131	**Design of VTFET based biosensor utilizing Ambipolar Current in detection mechanism** *Parmita Roy, Abhigyan Hazarika and Gaurav Trivedi*	673-677
132	**Investigating the device and circuit level performance of nanoscale double gate junctionless transistors** *Sandeep Kumar, Kulbhushan Sharma and Chusen Duari*	678-682
133	**Effect of Hole Transport Layer on Tin based Perovskite Solar Cells** *Somnath Dasgupta, Mihir Kumar Mahata, T. Das, A. Sarkar, Gufran Ahmad and Syed Sadique Anwer Askari*	683-686
134	**Photovoltaic Performance Analysis of Nanostructured GaAs 1-x Bi x Solar Cell for Mole Fraction 'x'=0.01** *Debamita Roy, Dip Prakash Samajdar and Abhijit Biswas*	687-691
135	**Theoretical Investigation of CsSn1-xGexI3 perovskite solar cells using Graded Bandgap Profiles** *Arya Narayanan, Babban Ravidas and Dip Prakash Samajdar*	692-695
136	**Investigation of the Recombination Processes in FA0.75Cs0.25SnI3¬-based Perovskite Solar Cell: A Theoretical Framework via SCAPS-1D** *Babban Kumar Ravidas, Mukesh Kumar Roy and Dip Prakash Samajdar*	696-700
137	**On the Potential of HEMT for Millimeter-Wave Applications and Integrated Circuits for 5G Transceivers: A Review** *Kamal Bhatia, Yogesh Kumar Verma, S. K. Hima Bindhu and Yashika Bhatia*	701-705
138	**An ab initio Study of Sub-5nm Monolayer Double-Gate Arsenene/Antemonene Junctionless Field Effect Transistors** *Alokesh Mondal, Anup Dey, Biswajit Maity and Manash Chanda*	706-709

139	**Exploring the potentials of a lateral p-n junction by using novel approach** *Sriyanka Behera, Gananath Dash and Satya R. Pattanaik*	710-713
140	**Comparative Performance Analysis of Dual FinFET and Gate-All-Around Triple Nanosheet FET for 5 nm Node** *Ram Krishna Dewangan, Vinay Kumar Singh and Mohammad Rafique Kha*	714-719
141	**Analysis of Membrane Yield in Insulated Air-Patched Capacitive Transducers for High-Frequency Applications** *Bijit Kumar Nath, Reshmi Maity and Niladri Pratap Maity*	720-725
142	**Parametric Studies of a Clamped-to-Clamped Resonant Beam Microelectromechanical System Based Accelerometer** *Mrinmoy Singha, Reshmi Maity and Niladri Pratap Maity*	726-732
143	**Predictive modeling of Nanoscale Junctionless FinFET using XGBoost** *Rachita Ghoshhajra, Kalyan Biswas, Mahamuda Sultana and Angsuman Sarkar*	733-736
144	**Sensitivity Investigation of Gate Stack Junctionless GaAs FinFET based NH3 Gas Sensor** *Divya Babbar, Neha Garg and Sneha Kabra*	737-741
145	**Enhanced Crop Yield Prediction by Machine Learning Techniques** *Papiya Das, Abhranil Pal, Rakteem Mullick, Sayak Singha and Subhrapratim Nath*	742-747
146	**Digital Predistortion Behavioral Modeling of Power Amplifiers: A Neural Network-Based Approach to Nonlinearity Compensation** *Hemant Kumari, Amartya Paul and Shubhankar Majumdar*	748-753
147	**Study of Electrical Characteristics and Charge Storage Behaviour of Gold Embedded Floating Gate MOS Structure.** *Amrita Banerjee, Gargi Chakraborty and Sunipa Roy*	754-758
148	**Optimizing Si-Based DG-JL-TFET Performance through Tunable Work function Engineering** *Tamilarasi R and Karthik S*	759-764
149	**Design and Implementation of Low Power Circuits based on 5nm Double Gate MOSFET Technology using Different Materials**	765-770

	Shrabanti Kundu and Jyotsna Kumar. Mandal	
150	**Comparative Analysis of Electrical Parameters for High Electron Mobility Transistors** *Yogesh Kumar Verma and Kamal Bhatia*	771-774
151	**Kernel Based Fuzzy Simulation Model for Early Detection of Cancer to Avoid Metastasis** *Soumen Santra, Dipankar Majumdar, Surajit Mandal and Arpan Deyasi*	775-778
152	**Design and implementation of CML frequency divider circuit using 90nm Technology** *B.Khaleelu Rehman, Ramgiri Sreeja, K Venkata Siva Reddy, P.Anuradha, Mohammed Abdul Nasar and Mudasar Basha*	779-784