

2024 21st International Bhurban Conference on Applied Sciences and Technology (IBCAST 2024)

**Murree, Pakistan
20-23 August 2024**



**IEEE Catalog Number: CFP2444B-POD
ISBN: 979-8-3315-1669-7**

**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:	CFP2444B-POD
ISBN (Print-On-Demand):	979-8-3315-1669-7
ISBN (Online):	979-8-3315-1668-0
ISSN:	2151-1403

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

CURRAN ASSOCIATES INC.
proceedings
.com

Table of Content

1	Minimizing Soil Mineralization Effects in Pulse Induced Metal Detector Through Dual Adaptive Filter-based Compensation to Detect Low Metal Contents.....	1
	Shahab Faiz Minhas, M Asad Bukhari, Muhammad Ali and Muhammad Bashir	
2	Wideband and High Efficient Polarization Converting Metasurface for Satellite Applications....	8
	Yahya Khan , Salma Nawab, Babar Kamal , Sadiq Ullah , Usman Ali, Babar Khan and Mujahid Ali Shah	
3	Design of Winch System with Automated Cable Winding Mechanism.....	12
	Hafiz Adnan Yasin, M Hamza Asif Awan, Farid Khattak and Abdul Hannan	
4	Robust Battery Management System for UAV Applications.....	18
	Muhammad Sufyan Arshad and Jawad Arif	
5	On Subarray based Beamforming Techniques for Target Detection using Underwater Sensor Arrays.....	25
	Ameer Ahmed, Umar Hamid, Shahid Ali and Asim Masud	
6	Analysis of Hot Streak Migration Characteristics in a Transonic Turbine Employing Nonlinear Harmonic Method.....	30
	Muhammad Afzaal Asghar, Abdul Rehman and Mohsin Ali	
7	Optimizing Electric Ducted Fan Performance: A Computational Design & Analysis Approach...	40
	Muhammad Abid Ali and Adnan Maqsood	
8	Underwater Object Detection from Sonar Images Using Transfer Learning.....	50
	Saba Mehmood, Muhammad Irfan, Umar Hamid and Shahid Ali	
9	Detail Analysis on the Micro Architecture and Integration of Bit Manipulation Extensions in the SweRV EH1 Core of a RISC-V Processor and Functional Verification.....	57
	Samina Yasmin, M Asim Naveed, Tassadaq Hussain and Eduard Ayguade	
10	Classification and Segmentation of Gastroenterology Images using Saliency Mapping in Convolutional Neural Network.....	66
	Yusra Khan, Arslan Shaukat and Farhan Riaz	
11	Advanced Power System Optimization: Evaluation of Automatic Generation Control Techniques in Two-Area Networks.....	72
	M Ayaz, Dur-e-Zehra Baig, S M Hur Rizvi, Shazil Ejaz, Armughan Ul Haq and Laksh Rathi	
12	Enhancing the UAV Localization Accuracy by Removing False Matches using Affine Consistency.....	78
	Rafia Malik, Abrar Qureshi, Muhammad Farooq and Muhammad Awais Akhter	
13	AI-Driven APT Detection Framework: Early Threat Identification Using ML.....	84
	Hidayat ur Rehman, Zunera Jalil and Safa Fahim	
14	A Comparative Study of IMM Kalman Filters and Neural Computing for Underwater Bearing Only Target Motion Analysis.....	92
	Wasiq Ali, Qiao Gang and Syed Asim Shah	
15	IMA- An Intelligent Obfuscated Malware Analysis Model.....	98
	Abrar Ahmad, Mehwish Naseer, Mahreen Ahmad and Khurram Mehmood	
16	Exploring the Impact of Dataset Content on Self-Supervised Pretext Rotation Learning: A Comparative Analysis using MobileNet.....	107
	Amina Asif, Muhammad Zakwan and Muhammad Habib Mahmood	

17	Efficient Multifunctional and Multiband Tunable THz Metasurface based on VO ₂	113
	Rehmat Iqbal, Ubaid Ur Rahman Qureshi, Cao Jie and Ishtiaq Ahmed	
18	Fabrication of Copper-doped Lignin-based Carbon Nanotube Composite Electrodes for Energy Storage Applications.....	118
	Zaib Ullah Khan, Jinghua Jiang, Asifa Kusar, M Yasir Ali Khan, Fahad Ali and Aqib Zahoor	
19	Kernel Fashion Context Recommender System (KFCR): A Kernel Mapping Fashion Recommender System Algorithm using Contextual Information.....	123
	Waseem Abbas, Uzair Rasheed, Sadia Khalid, Mustansar Ghazanfar and Ali Hassan	
20	A Comparison of EKF and PF to Localize an Autonomous Underwater Vehicle (AUV) using Inertial Navigation System.....	129
	Bushra Raza, Maryam Arshad, Syed Sajjad Haider Zaidi, M Abdullah and Farooq Alam	
21	Integration of Reinforcement Learning in Industrial Pick-and-Place Robotics.....	135
	Noor Ul Ain Mushtaq, Sanam Narejo, Madeha Memon, Fahad Ahmed Korai, Azhar Abbas and Sahil Jatoi	
22	Delineating the Atrial Chamber from the Cardiac Pool.....	141
	Arooj Arif, Salaar Khan and Sajjad Hussain	
23	On Optimization of Feed Network for Monopulse Radar using Sequentially Quadratic Programming.....	147
	Waqas Ahmed and Hassan Murtaza	
24	Prediction of Low Velocity Impact Performance of Carbon/Flax Bio-Hybrid Composites using Experimental and Neural Network Approaches.....	151
	Manzar Masud and Aamir Mubashar	
25	Selection of Suitable Internal Control Gene for Analyzing Innate and Humoral Immune Responses in COVID-19 Gene Expression Studies.....	159
	Tehreem Tahir, Sajid Manssor and Atika Mansoor	
26	State-of-the-Art Multi-Core Architectures: Analyzing Current Research, Identifying Gaps, and Exploring Future Directions.....	163
	Muhammad Shehryar and Farhan Hassan Khan	
27	Exploring the Potential of Machine Learning-Assisted Spaceborne GNSS-R Measurements for Ocean Eddy Detection.....	169
	Jin Xing, Dongkai Yang, Zhibo Zhang, Yu Long, Pengyu Yang and Feng Wang	
28	Performance Evaluation of C-band Class-AB Power Amplifier by Implementing Novel Sequencing Topology.....	173
	K. Hayat, F. A. Mughal, A. Kahif and S. Azam	
29	Performance Evaluation of Perforated Heat Sink for Active Thermal Management.....	178
	Maiyda Arshad, Usama Bin Mehboob, M Babar Nazir and Asif Mahmood Mughal	
30	Flight Mechanics of a Supersonic Projectile: A Parametric Investigation.....	184
	Abdul Rafay and Adnan Maqsood	
31	An Angularly Stable Bi-layered FSS for X- and Ku-Band Applications.....	193
	Syed Muhammad Qasim Ali Shah, Mohsin Mumtaz Tarar and Asim Quddus	
32	A Machine Learning-Based Framework for Predicting E-commerce Product Ratings.....	197
	Muneeb Iqbal, Faizan Hamayat, Rana Fayyaz Ahmad and Khursheed Husnain	
33	The Study Of Characteristics Of Self Organizing Teams In Agile.....	203
	Javeria Sadiq and Zeeshan Rana	

34	Accelerating Genome Sequence Analysis via Pre-alignment Filtering: A Review of Sneaky Snake Algorithm.....	209
	Mahgul Adnan, Soroush Javed Sulehri, Muhammad Ali Akhtar and Muhammad Aqil	
35	Experimental Verification of Rotating Sliding Mode Control with Composite Reaching Law Approach for Voltage Source Inverters.....	216
	Faheem Haroon, Asad Waqar, Muhammad Aamir, Syed Hayder Abbas, Syed Umaid Ali and Saeed Mian Qaisar	
36	Dynamic Inversion based Higher Order Model Reference Adaptive Control of Scalar Systems with Time Varying Parameters.....	222
	Fawad Farooq Ashraf, Urva Shahzad, Surrayya Mobeen, Hafiz Zeeshan Iqbal Khan and Jamshed Riaz	
37	Forecasting Particulate Matter (PM2.5) Concentration in Air with Double Attention GRU.....	228
	Saira Mudassar, Habiba Kamran, Ijaz Hussain and Aneela Zameer	
38	Layered Double Hydroxide Based Self-Powered Triboelectric Sensor for Biomechanical Motions	234
	Claudio Leonardi, Muhammad Saad Ur Rahman, Fatima Rehan, Antonio Giodano, Muhammad Ihzam Zia, Mohsin Saleem, Pier Gianni Medaglia and Usman Khan	
39	Vibrational Analysis of a Reinforced Concrete Structure using Viscous Dampers.....	239
	Shanza Roshan, Sarmad Javed, Shazeb Ali, Mateen Ullah Meo and Sameer Khalid	
40	Designing an Optimal Tuned Mass Damper System for Seismic Vibrations.....	247
	Loveeza, Laila Haider, Naffay Zaman, Mateenullah Meo and Sameer Khalid	
41	ServeNet-GPT-Fusion: A Fusion Language Model For Web Services Classification.....	256
	Sizuo Liu, Yilong Yang, Muhammad Ali Khan, Zhen Tian, Ping Chen and Jingwei Shang	
42	A Numerical Approach to Predict Roller Follower Valve Trian Frictional Torque Considering the Effects of Roller Sliding.....	262
	Tayyab Ul Islam, Muhammad Khurram, Ali Raza, Idrees Azeem Rizwan, Marva Hadia and Barira Habib	
43	Enhanced Camouflaged Object Detection for Agricultural Pest Management: Insights from Unified Benchmark Dataset Analysis.....	273
	M Hussain, Samiya Ali Zaid, Afsah Hyder, Muhammad Ali Rizvi and M Farhan	
44	A Secure and Distributed Decision Based Handover Scheme for Low Earth Orbit Satellites in 6G Internet.....	281
	Muhammad Arshad, Jianwei Liu, Muhammad Usman and Waqar Khalid	
45	Performance Analysis of Model Predictive Controllers for Active Cell Balancing of Electric Vehicle Battery.....	288
	Afaq Ahmed, Ali Arshad Uppal, Qadeer Ahmed and Muhammad Rizwan Azam	
46	Spacecraft Dynamics Linearizing & Optimal Control Based on Operational Research & LQI.....	294
	Biyogo Nchama Vicente Angel Obama, Peng Shi, Sajjad Hossain Masum and Ayesha Saeed	
47	Enhanced Pneumothorax Detection in Chest Radiographs Via a Deep Learning Framework DENSE Network Fusion with Yolov8.....	300
	Imtiaz Ul Haq Khan, Saba Firdous, Daniyal Ahmad Shazil, Adnan Shahbaz, Fasih Zaka and Rana Hassan Ajmal	
48	A Password Strength Classifier using Supervised Machine Learning.....	306
	Nida Khalid, Aima Zahid and Shibli Nisar	
49	Beyond Boundaries: A Novel Ensemble Approach for Breast Cancer Detection in Ultrasound Imaging Using Deep Learning.....	315
	Ateeq Ur Rehman Butt, Muhammad Asif, Tayyaba Rashid, Hamid Ali, Sonia Raoof and Farwa Raoof	

50	A Model Driven Framework Enabling the Development of Standardized Text-free User Interface for Smartphones.....	321
	Uzair Rasheed, Sadia Khalid, Rabia Mehmood, Muhammad Ahmad and Mishal Muneer	
51	An Intelligent Digital System for Foot-Weight Distribution Analysis.....	327
	Tassadaq Hussain, Amna Haider, Uman Ahmad, M Haris, M Zeerak Awan and Eduard Ayguade	
52	An Experimental Investigation of the Mechanical Response of Nomex Sandwich Composites Under Bending Loads.....	332
	Sameer Khalid, Hassan Ejaz and Muhammad Shayan Khan	
53	Identification of Important Design Zones of Bladeless Thruster.....	338
	Mohammad Farzan Aslam, Syed Ali Essan Bukhari and Saad Qureshi	
54	MASA: Multi Agent Situational Awareness for Visually Impaired.....	349
	Zaid Mahboob, Salman Sadiq, Umar Shahbaz Khan, Ayesha Zeb and Mohsin Islam Tiwana	
55	Comparative Study of Pole Placement and Linear Quadratic Controller for Above Knee Prosthetic Leg.....	355
	Muhammad Arqum Razzaq, Muhammad Usama Farooq, Waheed ur Rehman, Sheraz Yaqub, sana Liaquat and Ahsan Ali	
56	Underwater Acoustic Data Classification Using Continual Learning.....	362
	Khurram Shehzad, Arif Ur Rahman, Muhammad Irfan and Umar Hamid	
57	AI Driven Prognosis in Pediatric Bone Marrow Transplantation Survival.....	368
	Wafiya Sohail, Farhan Shoukat and Yasir Ali	
58	Enhancing Water Droplet Movement on Digital Microfluidic Platform using Replaceable Dielectric Layer and Natural Hydrophobic Lubricants.....	374
	Hammas Ullah, Shahaab Jilani, Fatima Yaseen, Nauman Naeem, Moazzam Ali, Ali Turab Jafry and Huma Ajab	
59	Multi-Fidelity Aerodynamic Shape Optimization Strategies: Minimizing Induced Drag and Achieving Desired Lift Distribution.....	379
	Amna Haq, Farzam Ali and Saad Qureshi	
60	VIV & Heat Transfer for Flow Around a Square Cylinder with Corner Modifications at Low Re... ..	390
	Asad Ijaz, Kamran Afzal, Tayyub Qayyum, Shehryar Manzoor and M. Yamin Younis	
61	Interlock and raster angle optimization for enhanced impact toughness of PLA pro Multi material joining.....	400
	Shafi Ullah, Muhammad Bilal Khan and Ghulam Hussain	
62	Synthesis of Improved Soft Magnetic Composites for Applications in Transformer Core.....	406
	Muhammad Usama, Aqib Zahoor, Asifa Kusar, Amena Mohsin, Fahad Ali, Naeem ul Haq Tariq, Hafiz Rub Nawaz Shahid and Hassan Waqas	
63	Developing of Novel Hybrid Auxetic Structures for Enhanced Compression Properties via Additive Manufacturing.....	412
	Babar Ashfaq, Ghulam Hussain, Muhammad Bilal Khan and Atif Muzaffar	
64	Unveiling Android Malware Behavior: A Hybrid Approach for Comprehensive Analysis and Classification.....	418
	Sheikh Muhammad Zeeshan Javed and Muhammad Faisal Amjad	
65	Camera Integrated MIMO Antenna with Radiation Pattern and Polarization Diversity.....	423
	Muhammad Qamar, Kamil Yavuz Kapusuz, Mohamed A. Thaha and Akram Alomainy	

66	Impact of Gravitational Force on Dynamic Contact Angle and Velocity of Microdroplets on Hydrophobic Surfaces in Digital Microfluidics.....	427
	Moazzam Ali, Hafiz M. Rizwan, Nauman Naeem, Hammas Ullah, Hamza Javaid, Ali Turab Jafry, Shahaab Jilani and Huma Ajab	
67	Genetic Algorithm-Based Load Balancing for Effective Demand Response with Renewable Energy Integration in Residential Settings.....	433
	Maria Ashraf, Maryam Ashrad, Bushra Raza, Syed Sajjad Haider Zaidi and Farooq Alam	
68	Alkaline Earth Metal- Modified Cellulose Triacetate: A Promising Advancement in Battery Separator Technology.....	438
	Shabana Noureen , Fiaz Ahmed , Muhammad Aslam Malana and Shoaib Ur Rehman	
69	Shock and Vibration Analysis (FEA) of Electronic Cabinets Onboard Naval Platforms.....	443
	Muhammad Hamza Asif Awan, Hafiz Adnan Yasin, Farid Khattak and Abdul Hannan	
70	Dynamic Stability Analysis of Spin-stabilized Projectile.....	447
	Ali Raza	
71	A Novel Half Ring LHCP Printed Cross Dipole Antenna for UHF Glacial Environmental Sensor Networks.....	454
	Muhammad Abdur Rehman Hashmi	
72	Graded Waveguide design for Improved Performance of AlGaIn based Deep Ultraviolet-C 221 nm Laser Diode.....	460
	Syeda Wageeha Shakir, Muhammad Usman, Usman Habib, Shazma Ali, Wagma Hidayat, Anum Ali and Iqra Anjum	
73	Matched-Spectrum Interference on GPS Receivers; A State-of-the-Art Analysis.....	466
	Muhammad Waqas Bashir Rajput, Syed Khurram Mahmud, Ammar Saleem, Sohaib Yaqoob Chaudhry and Muhammad Farhan Shahid	
74	Novel 6G Network: Maximizing Sum Rate and User Association by Minimizing Cost Ensuring QoS.....	472
	Umar Ghafoor and Adil Masood Siddiqui	
75	Machine Learning Based Robust Control Solutions for Buck Converters: ANN and Fuzzy Logic Methods.....	478
	Muhammad Ayaz, Dur-e-Zehra Baig, Syed Muhammad Hur Rizvi, Laksh Rathi, Muhammad Armughan Ul Haq and Shazil Ejaz	
76	SAR and Multispectral Image Fusion Using Multibranch CNN and Cross Domain Learning for Local Climate Zone Classification.....	484
	Chen Jie, Amjad Nawaz and Yang Wei	
77	AI framework for Urban and Natural Scene Classification using Multiscale Attention for SAR/Multispectral Big Data.....	490
	Amjad Nawaz, Chen Jie and Yang Wei	
78	Guidance and Control of a Spinning 155mm Artillery Shell using Vector Form of Proportional Navigation Guidance.....	496
	Muhammad Haris Rehman, Sajjad Asghar, Muhammad Abid and Abdul Qayyum	
79	Adaptive Power Control Based on Neural Network Design and Implementation for the Hybrid Shipboard Microgrids.....	502
	Farooq Alam, Arsalan Rehmat, Syed Sajjad Zaidi, Bushra Raza, Maryam Arshad and Muhammad Abdullah	
80	Enhanced Efficiency of Deep Ultraviolet μ LEDs through Graded-Last Quantum Barrier Integration.....	512
	Shazma Ali, Muhammad Usman, Wagma Hidayat, Anum Ali, Iqra Anjum and Syeda Wageeha Shakir	

81	Efficient Path Planning and Collision Avoidance for Autonomous Robot Navigation.....	516
	Kaynat Gul and Naeem ul Islam	
82	A Regression-Based Approach to Optimize Curved Beam Parameters for Micro-Scale Bistable Actuation.....	522
	Muhammad Owais Tariq, Shafaat Ahmad Bazaz and Hussain Ahmed	
83	Machine Learning-Based Anomaly Detection for Man-in-the-Middle Attack Identification in Cloud Computing Infrastructures.....	526
	Adnan Shahbaz, Saba Firdous, Rana Hassan Ajmal, Imtiaz ul haq khan, Fasih Zaka and Daniyal Ahmad Shazil	
84	Real-Time VoIP Classification in Encrypted Traffic Using Deep Learning.....	532
	Fahad Naeem and Rabia Irfan	
85	Determination of Activation Energy using various Kinetic Models and their Influence on Life Prediction of Neoprene Rubber.....	538
	Wasif Shahzad, Asma Ameer and Kazim Hussain	
86	A Smart And Sustainable On The Move Charging Solution For Autonomous Electric Vehicles/ Electric Vehicles	549
	Yasir Javeed and Hafiz Muhammad Mehdi	
87	A Post Quantum Light Weight Cryptographic Algorithm over Quaternion Integers.....	558
	Tanveer ul Haq, Inam Ul Haq, Naveed Ahmed and Abdul Razzaq	
88	Assessing Concept Drift in Malware: A Comprehensive Review and Analysis.....	564
	Ezza Ali, Nighat Batool, Muhammad Rizwan and Sohail Sarwar	
89	Multi-layer Metamaterial and FSS based Antenna for WLAN, WiFi, and lower 5G band Applications.....	570
	Hassan Khalid and Talal Ahmed Malik	
90	The Effect of Affine and Extended Affine Equivalence Class Against Various Cryptographic Profile.....	576
	Ijaz khalid, Zohaib Hassan and Haroon Ul Rasheed	
91	Adaptive Observer based Output Voltage-Tracking Control of DC-DC Boost Converters.....	584
	Haris Sheh Zad, Abasin Ulasyar and Adil Zohaib	
92	Leveraging Occlusion Sensitivity for Malicious Code Localization.....	589
	Muhammad Rizwan, Faiza Babar and Sohail Sarwar	
93	Online Fault Diagnosis of the Water Circulation System of Altitude Simulation Test for LREs...	593
	Yong Xu, Hongjie Guo and Guozhu Liang	
94	Thermal Modelling of the Selective Laser Melting (SLM) 3D Printing Process and Melt Pool Characteristics.....	599
	Ahmad Kamran and Muhammad Ahsan Kaleem	
95	Accuracy Enhancing Time Limited Model Reduction Framework: Computational Efficiency in Power Systems.....	607
	M Latif, Hira Ambreen, Muhammad Imran, Samra Zafar, M Imran and Sajid Bashir	
96	Enhancing Agricultural Productivity: A Sensor Fusion, Spectroscopic Near Infrared, and AI-Based Framework for Monitoring Fruit Ripeness.....	612
	Hira Ambreen, Muhammad Imran, Tang Diyin and Chongsheng Zhang	
97	FMI for Sharing NASTRAN Dynamic FEM models.....	618
	Muhammad Salman and Fahad Ali	

98	Anomaly Detection in HTTP Logs: Leveraging Machine Learning for Uncovering Anomalous Traffic Patterns with SIEM Integration.....	622
	Waqas Ahmad and Muhammad Faisal Amjad	
99	Voltage Control in Electric Vehicle Integrated Active Distribution Networks – A Review.....	630
	Mohsin Atta and Muhammad Faisal Nadeem khan	
100	AHP-RNN based Hybrid Model with Embedded Software Solution for Smart Climate Control in IoT Automation.....	636
	Ali Hassan Jamal, Abdul Basit, Faheem Qaisar Jamal and Kashif Shahzad	
101	Enhancing Charge Storage Mechanism in Mixed Metal Phosphate as Anodic Electrode Material for Energy Storage Systems.....	642
	Anique Ahmed, Muhammad Ramzan Abdul Karim and Muhammad Usman	
102	Assessment of ASTM Standards for Investigation of Inter-laminar Shear Strength in 3D Woven Angle Interlock Composites.....	N/A
	Muhammad Rizwan ul Haq, Muhammad Wasif Khan and Husnain Tahir	
103	Effect of Antioxidant Activity on Aging Profile of Expansion Joint Sealant.....	656
	Shazia Amir and Naveeda Ahmed	
104	Design of all-metal Wideband Phased Array Antenna for Radar Applications.....	664
	Hussain Sajjad, Shi-Wei Qu, Abu Bakar Sharif, Hassan Sani Abubakar and Jawad Rahim	
105	RNNDRP: Developing Recurrent Neural Network based Anticancer Drug Response Prediction Model.....	667
	Awais Raza Zaidi, Muhammad Bilal and Abdul Majid	
106	A Novel Nonlinear Feature Extraction Method of Ship Radiated Noise based on Phase Space Reconstruction and Multiscale Improved Permutation Entropy.....	672
	Yaan Li and Yupeng Shen	
107	Design and Implementation of Integer-N Frequency Synthesizer for Radiometer.....	678
	Muhammad Tahir, Muhammad Kashif and Jungang Miao	
108	Comparative Analysis for CSI, QoS, and Hybrid SIC based Decoding Order Schemes in NOMA-assisted MEC Systems.....	687
	Yixuan Li, Muhammad Usman Ejaz and Tayyaba Irum	
109	Development of Oceanographic Acoustic Modelling Tools for Streamlined Transmission Loss Analysis.....	694
	Rashid M. Talha, M. Asif Farooq, Sartaj Khan, Kashif Iqbal and Muhammad Asim Ismail	
110	Analysis of Central Pivotal Load Effect on Circular Piezoelectric Unimorph Sensor.....	701
	Muhammad Mazhar, Adnan Qaseem, Waqas Alam, Asim Ismail and Kifayat Ullah	
111	GaN-based Low Noise Flat Gain Amplifier for X-band Applications.....	704
	M Imran Nawaz, Salahuddin Zafar, Busra Cankaya Akoglu, Erdem Aras and Ekmel Ozbay	
112	Synthesis Of Water-Resistant Polyurethane Composite for Underwater Transducers Encapsulation.....	708
	Ammar Hasan Asghar, Adnan Qaseem, Shahid Ali and Saqib Nasim	
113	Design and Development of A Shallow Water Echo-Sounder for Marine Platforms.....	714
	Adnan Qaseem, M Sohail Tahir, Ammar Hasan Asghar, Tayyaba Kokab, Abdul Haq and Shahid Ali	
114	Effect of Variation in Diameter on the Rotation of Half Submerged Wave Driven Savonius Turbines – An Experimental Investigation.....	720
	Majid Khan, Shafiq R Qureshi, Adeel Waqas and Ali Kazmi	