2017 1st International Conference on Electronics, **Materials Engineering** and Nano-Technology (IEMENTech 2017)

Kolkata, India 28-29 April 2017



IEEE Catalog Number:

CFP17M01-POD **ISBN**: 978-1-5386-1704-5

Copyright © 2017 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:
 CFP17M01-POD

 ISBN (Print-On-Demand):
 978-1-5386-1704-5

 ISBN (Online):
 978-1-5386-1703-8

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 Content

Keynote Addresses

Speaker	Topic
Dr. Masahiro Fujita	Very efficient power gating for higher performance
The University of Tokyo, Japan	computing
Dr. K.P. Ghatak	The 2d effective mass in quantum wells, inversion layers
Institute of Engineering &	and nipi Structures
Management, Kolkata	
Dr. Susanta Sen	AlGaN based Quantum Well Photodetectors for Solar
University of Calcutta, Kolkata	Blind Applications
Dr. Samit Kumar Ray	Semiconductor Nanostructures for Photonic Devices
S.N. Bose National Centre for Basic	
Sciences, Kolkata	
Dr. T. K. Gangopadhyay	Optical Fiber Sensor: A revolution in the field of sensing
CSIR-Central Glass & Ceramic	technology
Research Institute, Kolkata	
Dr. B. N. Dev	Materials and issues in miniaturization in silicon
IACS, Kolkata	technology towards quantum computers
Dr. Goutam Saha	Fostering Innovation through Patenting
IIT Kharagpur, Kharagpur	
Dr. Manojit Mitra	Performance Enhancement of IMPATT diode based on
IIEST, Shibpur	material parameters
Dr. Prasanta Karmakar	Isolated nano-structure formation by self-masking ion
VECC, Kolkata	Implantation
Dr. Lokesh C Trivedi	Ion accelerators for research in Atomic and molecular
TIFR, Mumbai	collision physics

Contributory Papers

Topic Name: Microwave and Antenna
Port Isolation Enhancement of a Dual Polarized Rectangular Dielectric Resonator
Antenna
Development of Novel Engineered Metamaterial Structure, Extraction of Various
Parameters and Applications
Design of Half Mode Substrate Integrated Waveguide (HMSIW) Filter with Series
Defective Microstrip Structure (DMS) for Ku band Operation
Complementary Inverted Reactive Slot Antenna Embedded in Single Layer
Substrate Integrated Waveguide (SIW)
A Direct Microstrip Line Feed Hemispherical Dielectric Resonator Antenna Array
CPW-Fed Small UWB Monopole Antenna for Energy-Harvesting Applications
Bandpass Filter (BPF) Design using Waveguide Iris Conformation over Substrate
Integrated Waveguide (SIW) Bend
Resonant Frequency of an Inhomogeneous Rectangular Microstrip Antenna
I-shaped Dual-resonant Gigahertz Antenna for Radiolocation and Military
applications
Rectangular Tera Hertz Microstrip Patch Antenna design for Vitamin K2 detection
applications

Bandwidth Enhancement of a Microstrip Patch Antenna Using Cuckoo Search Optimization
A Compact RF Chain for Transmit Module at Ku Band for SATCOM Application
CPW fed Substrate Integrated Waveguide based Band Pass Filter in K Band
Substrate Integrated Waveguide Antennas and Arrays
Topic Name: Materials Engineering & Nano-Technology
Topic I tumes is an analysis of I tume Teemistogy
Thermoelectric properties of Si Nanoparticle-Polyaniline composites
Modeling and Simulation of Ion-Sensitive Field-Effect Transistor using TCAD Methodology
Conceptual Design of a Double Antenna fed ECR Plasma Enhanced Nano-Film Deposition System
V ₂ O ₅ –MoO ₃ –ZnO Thick Film Resistors as Highly Selective Trace Level Ethanol Gas Sensors
Design Study of a Portable Permanent Magnet ECR Plasma Source for Thin Film Deposition
Analysis of Nucleation and Growth Parameter of Silver Nanoparticles for sensors
Gold Nanoparticle Patterning on Titanium Dioxide Thin Films by Hydrophilic and
Hydrophobic Interactions: Effect on Band Gap
Wet-chemical Synthesis and Optical Properties of CuO Nanoparticles
Balancing Security & Sharing of Fitness Trackers' Data
Preparation and investigation of nano-enhanced PCM for thermal energy storage
Topic Name: Nano-Materials & Opto-Electronics
Topic Fames Fame Materials & Opto Electronics
Effect of Surface-to-Volume Ratio on Eigenenergy in Quantum Disk in presence of Magnetic Field
Generating Dark Solution inside Fiber Bragg Grating Structure for Hermite-Gaussian Input Wave
Wavelength Dependence of Impedance and Quality Factor for MIM Surface Plasmon Structure
JAVA-GUI based Package for Calculating Bandwidth and Ripple of 1D PhC based Filter
Design of all-optical T-gate and Quaternary subtractor circuit
Design of all-optical one bit binary comparator using reversible logic gates
Performance Estimation of Photonic Crystal based Butterworth Filter at Higher Temperature due to Joule Heat Dissipation
Theoretical analysis of fiber loop ringdown spectroscopy for gas sensing
Topic Name: Semiconductor Device Physics
*
Analytical Computation of Transconductance Characteristics of Single Electron Transistor
Structural Analysis of 1.1kV 4H-SiC Power DMOSFETs and it's Susceptibility to
high Temperature
Performance Enhancement in Al _{0.3} Ga _{0.7} N/GaN HEMT based inverter using MOSHEMT
Quantitative Equivalent Circuit Modeling of ZnO Nanorod based MIS Vapor Sensor Device
Design of High Performance 8 bit Binary Multiplier using Vedic Multiplication Algorithm with 16 nm technology

Impact on Gate Oxide material of Inverted 'T' Junction less FinFET at 22 nm Technology node	
Impact of AlGaN barrier layer on DC and AC characteristics of Al _x Ga _{1-x} N/GaN MOSHEMT	
TEM Analysis of Microheater Using SiO ₂ /Si ₃ N ₄ Composite Membrane For Long	3
Term Gas Sensing Applications	
Topic Name: VLSI Circuit Design & Micro-Electronic Device	
High Gain Low Power Low Noise Trans-Impedance Amplifier for Current Sensin Application	ng
Realization of Single and Double Cole Tissue Models using Higher Order Approximation	
Fully Integrated Sub-Threshold Body biased low noise portable ECG frontend	
CMOS Temperature Sensor Using A Current Starved Ring Oscillator For Low Power And Low Leakage IOT Applications	
Low Power High Speed Frequency Divider for Frequency Synthesizers in 180nm	1
CMOS Technology	
An improved TIQ Comparator based 3-bit Flash ADC	
Implementation of Standard Functions Using Universal Gate in QCA Designer	
Nano-Calculator Using Quantum Dot Cellular Automata (QCA)	
Design of 1-bit Full Adder using β-Driven Threshold Logic paper title	
Irrigation Management System with micro-Controller Application	
Topic Name: Industrial Electronics & Control Systems	
Intelligent Computing Based Converter Fault Identification in Line Commutated	
High Voltage Direct Current Transmission Line	
A Comparative study of different multilevel inverters	
Dimension Reduction and Controller Design for Large Scale Systems Using	
Balanced Truncation	
Approximation to an Unstable, MIMO Waste Water Treatment Plant	
MPPT Based High Gain Converter	
Fault Detection in Direct Current Transmission Lines Using Discrete Fourier	
Transform from Single Terminal Current Signals	
Implementation of Graphical User Interface for Single Area Load Frequency Control	
Optimized PI Controller for an Interacting Spherical Tank System	
Hankel Norm Approximation of a Stable Non- Minimal System	
Topic Name: Signal and Image Processing	
A meticulous implementation of RSA Algorithm using MATLAB for Image	
Encryption An Intelligent Method for Classification of Normal and Aggressive Actions from	
An Intelligent Method for Classification of Normal and Aggressive Actions from Electromyography Signals	
Steganography using Wavelets with Statistical Performance Analysis	
Detection and Classification of Breast Cancer from Digital Mammograms using I	RF
and RF-ELM Algorithm	
Pediatric Seizure Prediction From EEG Signals Based on Unsupervised Learning	
Techniques Using Various Distance Measures	

Early detection of diabetes based on Skin impedance Spectrogram and heart rate variability noninvasively
Automatic Mixed Pixel Detection using a new Hybrid Cellular Automata Approach
on Satellite Image
Performance Analysis and Implementation method of VMF and EVMF for Removing of Impulse Noise on FPGA
Convolutional Neural Network based Face detection
Discrete Wavelet Transform Based Colon Polyp Detection Using Synthesize
Similarity Measure
Dehazing Technique for Natural Scene Image Based on Color Analysis and
Restoration with Road Edge Detection
Performance Analysis of New Adaptive decision based median filter on FPGA for
Impulsive Noise Filtering
Fast Adaptive Screening of Breast Cancer: Survey on Dielectric and Loss Factor
Classification of EEG Signals for Prediction of Seizure using Multi-Feature
Extraction
Review and Application of Different Contrast Enhancement Technique on Various
Images
Topic Name: Wireless/Mobile Communication & Computing
Design and development of a wireless sensor network for the study of thermal
instability of the Earth surface as a probable precursor of earthquake
An Efficient Algorithm for Coverage Hole Detection and Healing in Wireless
Sensor Networks
Performance Analysis of Spectrum Sensing in Cognitive Radio at Low SNR
Environment
Formal Modeling of Smart Logistics Monitoring
Modified Ant-AODV-VANET Routing Protocol for Vehicular Adhoc Network
Implementation of Cognitive Network Channel Sensing and Allocation
Performance analysis and optimization schemes for cooperative spectrum sensing
and information fusion for cognitive radio: A Survey
A Hybrid and Energy Saving Approach for hierarchical Routing Protocol using
SEP-VD
A New Idea on Road Safety Using Smartphone
Secondary User Capacity Maximization in CR under Nakagami-m Fading Channel
with Receiver Diversity
Formal Modeling of Smart Home Monitoring System
Topic Name: Green Technology
Wind Power Grid Interfacing using 3 Level vs 5 Level Inverter with SEPIC
Converter
A Review on Smart Grid Initiatives and Power Structure in India
Optimization of a Smart Grid Distributed Generation Designing of a Hybrid Solar
System for a Building
Smart Village
Non-Conventional energy sources using piezoelectric crystal for wearable
electronics

Topic Name: Bioelectronics and its Application
Design of Low cost Apnea Detector by Modifying a Simple Pulse Delay Circuit Interfacing with Computer with audio input by freely available audio Software
Understanding the Role of ECG In Cardiac Conduction And Perfusion Disorders A Vectorial Approach
Real Time Health Monitoring of Patients from a Remote Place
Comparison between TP and Fan Data Compression Techniques of ECG Signal
Topic Name: Robotics & Artificial Intelligence
Task Space Stiffness Analysis of Wire Driven Parallel Manipulator
Non-dominated Sorting Genetic Algorithm – II supported Neural Network in Classifying Forest Types
Cuckoo Search coupled Artificial Neural Network in Detection of Chronic Kidney Disease
Naturalistic Gestures Based Human Robot Interaction on a UGV for Outdoor Use
Identification of an Effective Learning Approach to Landmine Detection
Design, development and locomotion control of compliant soft mobile robot
Lawn Mower Trajectory Tracking By Wheeled Mobile Robot Its Consequences
Smart Transaction and Automation System for Banks
Obstacle Avoidance For UAVs used in Road Accident Monitoring
Prevention of Driving Under Influence using Micro-controller