Contents

Bragg Grating Solitons in Semilinear Couplers with Dispersive Reflectivity
Dynamic Frequency Response of Charged Chiral Rods
Segmentation of OPG Images in Studying Jawbone Diseases
An Improved Segmentation of Brain Tumor, Edema and Necrosis
Bone Marrow Analysis in Multi-contrast MR Images
Stochastic Models of Electrodynamics and Numerical Models
Stochastic Description of Wireless Channel for Cognitive Radio
Statistical Evaluation of Diffusion-weighted Imaging of the Human Tissues
Software for Partial Discharge and Localization
Automatic Detection and Segmentation of the Tumor Tissue
Study of the Influence of Magnetic Fields on Plants Tissues
Combined X-ray Diagnostics of Heterogeneous Biological Material
Miniature Planar Triple Passband Filter Using Embedded Resonators
Design of Planar Single-section and Cascaded Directional Filters
Wideband Planar Filter Using Signal-interference Techniques
Planar Bandpass Filter Design Using Transversal Filtering
Performance of MIMO RADAR Using Two-way MUSIC
On Multi-antenna Systems for Wireless Transmission Mediums
On the Multihop Relays with Multiple Antennas for LTE-A
Channel Capacity Improvement Dependency of the Number of Receiving Antennas for Aeronautical MIMO Systems
MIMO SC-FDE Transmission Techniques with Channel Estimation and High-order Modulations $\dots 105$
Single-stream Communication Using Orthogonal Signal Division Multiplexing with Multiple Antennas 113
General Ray Method for Solution of Dirichlet Boundary Value Problem for Helmholtz Equations $\dots 117$
High Resolvability of Electrical Tomography Based on General Ray Method
Fast Numerical Solution of Dirichlet Boundary Problem for Laplace Equation in 3D Domains with Complicated Geometry
Electromagnetic Eigen-field Characteristics of Acousto-optic Waveguides with Transverse SAW 129
Permittivity Determination of Multi-sectional Diaphragm with Metamaterial Layers in Rectangular Waveguide
Multi Bands Reconfigurable Antenna for Mobile Phone Application
Reconfigurable Antenna with Tri-polarization Capability
Analysis of Phase Range Distribution of Different Reflectarray Elements on Polycrystalline Silicon Cell 147
Photon Generation from Quantum Vacuum Using a Josephson Metamaterial
Filtration Properties of a System for the Measurement of Air Ions
A Comparison of the Dynamic Range of FDNR Building Blocks

Analysis of Leap-frog Filter in the Programme NAF	
Application of the Level Set Method in MR-EIT Inverse Problems	. 167
Influence of Initial Conditions on Conductivity Calculation via the MR-EIT Inverse Problem	171
EM Field and Biological Systems Interactions	175
Electromagnetic Modeling and Simulation for Interconnect Structures Based on Volume-surface Integra Equations	
Refractive Index Profiling of Metal-diffused Planar Waveguides Using a Differential Near-field Optica Microscopy	
Interference Cancellation and DOA Estimation by Generalized Receiver Applying LMS and MUSIC Algorithms	
Rain Attenuation Prediction Using Frequency Scaling Technique at Tropical Region for Terrestrial Link	191
New Indoor Propagation Channel Model for Location Purposes	. 195
Access Point Selection for WLAN Indoor Localization Systems Using RF Walk Test Data	. 199
Evaluation of Singular Potential Integrals with Linear Source Distribution	203
A Multi-arm Coupled-fed Monopole Antenna for WWAN Mobile Systems	. 208
Design of Two-layer Hemispherical Dielectric Resonator Antenna	213
Use of Transparent Dielectric Resonator Antenna as a Light Cover	. 216
A Compact Loop Antenna with Parasitic Split Ring for UHF RFID Application	219
Compact Size Antenna for Car FM Radio	223
Gain Enhancement of Circularly Polarized Slender Antenna Using a Wider Helical Element	. 225
Resonantly Confined Modes in Optical Fibers with Circularly Aligned High-index Rods	. 228
Terahertz Metamaterial Absorbers for Sensing and Imaging	. 232
Operational Slow Line Underpinned by a 1D Metamaterial	236
An Optimized Design of Cylindrical Acoustic Cloak with Two-phase Isotropic Layered Composites	. 241
3D Active Imaging Models and Systems to See through Adverse Conditions: Application to the Surveillance of an Aircraft Environment	
A Multi-scale SAR Segmentation Based on Hierarchical Merging	. 251
New SAW Odor and Gas Sensor for Sensor Network Installed in Smart House	255
Checking of Combustion Chamber of Liquid Rocket Using ECT with AMR Sensor	. 261
Prediction of Radar Reflectivity along Radio Link	264
Time Domain Transient Analysis of Electromagnetic Field Radiation for Phased Periodic Array Antennas Applications	
Multiphysics Analysis for Electromagnetic Radiation by Elastic Media	. 272
Input Impedance Measurement for Balanced Antenna by S-parameter Method	. 276
Near-field Magnetic Probe Method Predicting Far-field Measurements — Correlation of Dipole Boresigh Measurements with Anechoic Range Model	
Effects of Residual Stress on Assembled SAW Strain Sensors	. 286
Design of Second-order Inductive-coupled Resonator-based Bandpass Filter with Controllable Multiple Transmission Zeros	
Design of Dual-band Coupling Matrix-based Matching Network	
Design and Characterization of Cryogenic Wideband LNA Using WIN 0.15 μm GaAs pHEMT Process	300
Evaluation of Nonlinear Effect Impact on Optical Signal Transmission over Combined WDM System .	. 303
Performance Improvement of Spectrum-sliced Passive Optical Network	. 308
Design of an Optimal Benes WEX Architecture Based on Sufficient Permutations	. 312
Analysis of Anisotropic Diffraction in Volume Gratings Using Liquid Crystal Composites	317

${\it Temperature Dependable Holographic Memory Using Holographic Polymer-dispersed Liquid Crystal \dots 322}$
Investigation on Band Gap Characteristics in a Two-dimensional Photonic Crystal with Honeycomb Structure
Study on Characteristics of the Photonic Crystal Fibers with Three Zero-dispersion Points $\dots 331$
Investigation on Slow Light of Uniform Fiber Bragg Gratings
Optical Fiber Nonlinear Coefficient Measurements Using FWM
Design of Quantum Secure Communication System Based on FPGA
Numerical Study of Effective Plasma Frequency for a Plasma Photonic Crystal in the Presence of Magnetic Field
The Studies of Enhanced Optical Single Sideband Modulation Using by Laser's Cavity Mode and Nonlinear Optical Fiber Effect
A Study of Enhanced Optical Single Sideband Modulation Based on Scattering Effects and Semiconductor Laser Injection Locked Technology
Development of Optical Wave Microphone Measuring Sound Waves with No Diaphragm
Visualization of Electric Discharge Sound Fields in Atmospheric Pressure Plasma Using Fraunhofer Diffraction
An Overview of Metamaterials in Biomedical Applications
Interfacial Properties of Modified Natural Polysaccharide Carbohydrate Surfactants
Indoor Broadband Spectrum Survey Measurements for the Improvement of Wireless Systems 376
Measurement of Inhomogeneity in the B_0 and B_1 Fields Performed via the Spin-Echo and Gradient-Echo MR Imaging Techniques
Processing of Magnetic Resonance Images of Adipose Tissues
The Effect of Extremely Low Frequency (ELF) Pulsed Electromagnetic Field (PEMF) on Bacteria $Staphylococcus\ Aureus$
The Effects of Visible Light Radiation (400–500 nm) on Enzymatic Activity of Collagenase392
The Comparison of the Contrasts of Magnetic Resonance Images of Plants
Electromagnetic Structures and Inertias of Particles including the Higgs Boson $\dots 401$
A Low Phase Noise CMOS VCO for the Millimeter Wave Application $\dots \dots \dots$
The Influence of an Electromagnetic Wave on the Acoustoelectric Current in a Rectangular Quantum Wire with an Infinite Potential
Influence of a Strong Electromagnetic Wave (Laser Radiation) on the Hall Coefficient in Doped Semi-conductor Superlattices with an In-plane Magnetic Field
Effects of Tuning Condition, Head Size and Position on the SAR of a MRI Dual-row Transmit Array at $400\mathrm{MHz}$
Three Dimensional Radar Imaging by Using Spherical Near Field Range $\dots 427$
Study of DNA Fingerprint of Pine Wood Nematode Based on Terahertz Spectroscopic Technology at $0-10\mathrm{THz}$
Terahertz Functional Tissue Imaging
$\label{thm:characterization} Characterization of High Intense Pulse Amplified by Yb-doped Fiber Chirped Pulse Amplification System for THz Wave Generation$
Reflection and Transmission of Electromagnetic Waves from the Boundaries of Anisotropic Magneto Dielectric Plate in the Waveguide
Wiener-Hopf Method for Problems of Diffraction of Asymmetric Waves by a Circular Cylinder $\dots 446$
Design and Implementation of Low Phase Noise Oscillator Based on Film Bulk Acoustic Resonator $\ldots450$
DOA Estimation via Phase Measurement
Universal Properties of Electromagnetic Pulses

Universal Properties of Electromagnetic Beams	464
Wide Band Open Ended Air Gap RLSA Antenna at 26 GHz Frequency Band	470
Design of Wideband Monopole Antennas Using a Simple Tapered Feed Line and Slot	474
A Grounded CPW Transparent UWB Antenna for UHF and Microwave Frequency Application	479
A Printed Dipole Antenna with U-line Matched for Dual-band WiFi Applications	482
Compact Dual-band Monopole Antenna for 2.4/3.5 GHz WiMAX Applications	487
Dual-band Transparent Antenna for ISM Band Applications	490
Developing Alternatives of Small Monopole Antenna Design for Achieving 4G-LTE Requirements in a Limited Antenna Size	
Investigation on CPW Koch Antenna Durability for Microwave Imaging	498
P-shape Monopole Antenna Design for WBAN Application	502
Can There Be WDM Solitons in Fibers?	506
Investigation of Two Bidirectional C + L Band Fiber Amplifiers with Pumping Sharing and Wavelength Reused Mechanisms	
Optical-circulator-based Single-frequency Fiber Laser Using Absorber and Subring Cavity in the Linear Cavity	515
Generation of Terahertz, Microwave, Radio Waves from a Laser-excited Wire Antenna	519
Arc-induced Long Period Fiber Gratings Based on Flat-clad Fibers	525
Transmitted Characterization of 625 Mbps/15 GHz ROF Signal Using a Direct Modulated Baseband Signal and Twice Optical Carrier Suppression Modulation	
A Fault-tolerant Mechanism on Star-ring Based Ethernet Passive Optical Networks	532
A New Mechanism to Improve Bandwidth Utilization and QoS of IPTV in Ethernet Passive Optical Network	
The Influence of the Electromagnetic Wave on the Nonlinear Quantum Acoustoelectric Current in a Quantum Well	
Dyson Equations for Dense Random Media Composed of Dielectric or Metallic Nanoscale Scatterers	548
Analysis of Parameter Sensitivity of Electromagnetic Railgun System	552
Analysis of Approaches for Modeling the Contact Resistance on Conductor Interface by the Finite Element Method	556
Analysis of the Electric Field Environment around Railway Platform	561
The Multi-component Signal Model and Learning Algorithm of Blind Source Separation	565
Near-weightlessness Movements in Electromagnetic Fields	570
Focusing on the Moiré Effect	575
Response of Multilayer Materials to Electromagnetic Waves	580
Analysis of Distortion Factor of Three Phase Linear Synchronous Motor	584
Simulation of 3-D SAR Imaging Based Outdoor RCS Measurement Technique	589
GRECO Based Spotlight SAR Imaging Simulation Method	594
Bridgeless SEPIC-derived LED Driver without Electrolytic Capacitor for Multistring Application	599
Investigation of Irregularities Induced from Medium-scale Traveling Ionospheric Disturbances Using Global Positioning System and Digisonde	
A Study of Equatorial Ionospheric Irregularities over the Indian-Ocean Sector during Solar Maximum by Using the Global Positioning System	608
Satellite Monitoring for Elasto-plastic Behavior of Plate around Epicenter in a Process Tsunami Earthquakes	612
A Geomagnetic Polar Drifting Path Evolution on the Geographic Earth Surface	616

Electromagnetic Process at a Crustal Fault Formation for Tsunami Earthquake on the Planet Earth .	. 619
Scattering of Light from Rough Surfaces, the Limits of Validity of Geometric Optics Approximation Method	
Modulation in the Spectral Degrees of Polarization of Stochastic Electromagnetic Higher-order Bessel Gauss Pulsed Beams	
Weighted Multi-frequency Imaging of Thin, Crack-like Electromagnetic Inhomogeneities	. 631
Estimating Properties of Subsurface Layers from GPR Spectral Attributes	. 636
Identification of Subsurface Thin Layers Using Cepstrum of GPR Data	. 640
Design and Implementation of Bandgap References Voltage Circuit for SOC Module Applications	. 644
Spatial Interpolation for Mapping Geoclimatic Factor K in South Africa	. 648
Non-parametric and Parametric Modelling and Characterization of the Effective Earth Radius Factor fo South Africa	
A 60 GHz Marchand Balun with Floating Ground Centre-tap in CMOS Technology	. 660
Compact UWB Monopole Antenna with Tapered Ground Plane	. 663
The Effects of Low Power Microwaves at 500 MHz and 900 MHz on Yeast Cells Growth	. 667
Design of 4 GHz Multiplier Based on Sigma-Delta Modulation in a 0.18-μm CMOS Technology	. 671
Effect of Low-power Microwave Radiation on Seed Growth Rate	. 676
Additional Efficiency Enhanced for DL-ARC Triple-junction GaAs/Ge Solar Cells Based on Indiun Nanoparticles Surface Plasmon Light Scattering	
Analysis and Construction of Output Capacitance Filter for High Power LLC Resonant Converter	. 684
Stable Adaptive Signal Generation in Current Based MRAS Induction Motor Sensorless Speed Control	689
Comparison of DTC and Sliding Mode Control of IM Drive	. 693
Design and Implementation of a Variable-frequency Multiphase VRM with Optimized Phase-reduction Control	
An Adaptive Current-sharing Control Technology for Multi Power Module with Hot Swapping	. 702
Implementation and Study of Super-capacitor Cell Power Management System	. 705
Design and Implementation of an LED Switching Regulator Using Inverse Buck Topology	. 709
Efficient Solutions of Volume Integral Equations with Inhomogeneous Materials	. 713
Electromagnetic Scattering from Aggregates Embedded in Absorbing Media	. 717
A New Parallel Version of the DDSCAT Code for Electromagnetic Scattering from Big Targets	. 722
Analysis of Electromagnetic Scattering from Absorptive Dielectric Rough Surfaces with Underneath	
Target	
Investigating the Radar Returns of a Wind Turbine	
Tapered Fiber Mach-Zehnder Interferometer for Liquid Level Sensing	
Reflection and Transmission Characteristics of Lattice Grid with Lossy Clad for Optical CT	
Reconstruction of Dielectric Objects by Solving Volume Integral Equations with Tetrahedral Discretization	. 743
Low SAR, Compact and Multiband Antenna	. 748
Creeping Wave Antenna Design and Application for On-body Surface Communication	. 752
Compact Folded Meander PIFA Antennas in MedRadio Bands	
Metamaterial Loaded Wideband Patch Antenna	
Wideband Small Loop-monopole HF Transmitting Antenna with Implications for Maxwell's Equation and the Chu Criterion	
Performance Characteristics of Loop Antennas above a Ground Plane of Finite Extent	. 769
Design and Analysis of a Stripline Archimedean Spail Antenna	775

signer Surface Plasmon Polaritons	
A New Proof on Boundary Conditions in Electromagnetic Theory	783
Design of Ultra Low-power Voltage Controlled Oscillator in 0.18-μm CMOS Technology	787
Road-vehicle Cooperation for Lateral Guidance	791
A Compact Wilkinson Power Divider Utilizing Coupled Lines for Unequal Power Division and Equal Port Impedance	
A New Lowpass-to-broadband Synthesis Method which Preserves DC Connection	800
Contactless Power Transmission Track with Core Array Structure Unit for Mobile Apparatuses	808
Improved Circularly Polarized Bandwidth in Dielectric Resonator Antenna for L-band Satellite Application	
Real Time Parallel PSO and CFO for Adaptive Beam-forming Applications	816
Design of a Novel Dual-band Microstrip Patch Antenna for WLAN/WiMAX Applications Using Complementary Split Ring Resonators and Partially Defected Ground Structure	
Mutual Coupling Effects on the Linear Microstrip Array Self-impedance	826
A Compact UHF Antenna for Handheld RFID Reader	830
Dual-band Slot Antenna Using CPW Feed Line and Metasurface	833
Loaded Circular Patch Rectangular Slit Ultra-wideband (UWB) Microstrip Antenna	836
Printed Modified Bow-tie Dipole Antenna with Band-notch Structure	841
Printed Dual-polarization Broadband Directional Antenna	845
A Y-shaped Microstrip-line-fed Wide-slot Antenna with Band-controlled for Multiband Applications	848
Wide Band Frequency Control of Circularly Polarized Patch Antenna with Movable Dielectric	852
Crosstalk Modeling and Analysis of Through-Silicon-Via Connection in 3D Integration	857
Effect of Electromagnetic Interference (EMI) on the DC Shift of NMOSFET Current-mirror \dots	862
Effect of Electromagnetic Interference (EMI) on the DC Shift of NMOSFET Current Mirror with Capacitor Between Mirror Node and Ground	
Behavioral Modeling of a 12-bit 500-MS/s Multi-stage ADC $$	872
The Impact of USB 3.0 Module on Wireless Communication with Improved Solution for EMI Problem of High Speed Connectors	
Verification Analysis of Electromagnetic Coupling between Display Module and Antenna of Mobile Devices for Wireless Communications	
Resonant Capability of Multilayer Spheroidal Nanoparticles as Plasmonic Nanoantennas	886
Electromagnetic Equations in Curved Octonion Compounding Spaces	890
Design of Three-coupled Finline Bandpass Filter Using Full Wave Analysis	895
Perturbation Influence Analysis on the RCS of Dynamic Targets	900
Efficient Characterization of Fabry-Perot Resonator Antennas	905
Transparent Antenna Design for Wireless Access Point Application	910
Design of a Programmable Low-pass Filter for UHF RFID ZIF Receivers	914
Experimental Evaluation of Cytotoxicity Effects in Cancer and Normal Cells Exposed to Far Infrared Radiation	
The Effect of Pulse Parameters and Medium Information on the Temporal Coherence Length of a Partially Coherent Pulse on Scattering	
Analysis of Transmission Characteristics and Multiple Resonances in Plasmonic Gratings Coated with Homogeneous Dielectrics	
The Design and Implementation of a MISO Fuzzy Logic Controller Based on CPLD	932

Mobile Mouse Pad
An ECG Signal Enhancement Based on Improved EMD
A Rehabilitation Device for the Patients of Carpal Tunnel Syndrome
Estimation of Rain Attenuation at C, Ka, Ku and V Bands for Satellite Links in South Africa $\dots 948$
Computation of Rain Attenuation through Scattering at Microwave and Millimeter Bands in South Africa
Six-port Based Wave Correlator with Application to Micro-displacement Measurement
Uncertainty in Waveguide Vector Network Analyzer Measurements in the Frequency Range of D-band (110 GHz to 170 GHz)
The Progress of Unmanned Aerial Vehicle Synthetic Aperture Radar Development for Environmental Monitoring
Development of an Integrated Velocity Compensation Timing and Control Unit for SAR $\ldots \ldots 987$
Design and Development of a Sidelooking Microstrip Patch Antenna for Unmanned Aerial Vehicle Synthetic Aperture Antenna
High Speed AD DA for Synthetic Aperture Radar
Realization of Interpolation-free Fast SAR Range-Doppler Algorithm Using Parallel Processing on GPU998
Performance Analysis of DPCA Based SAR Moving Target Detection
Microstrip Slot Antenna for Mobile Base Station
Resonance Absorption in Multilayered Bi-gratings
Applications of the High-order Method in Dielectric Material
Assessment of Decoupling between MRI Array Elements at $300\mathrm{MHz}$
Circularly Polarized Patch Antenna Based on Chiral Metamaterial
Simulation of the Noise Induced by Corona Discharges on a Ground VHF Antenna $\dots 1028$
Novel Design of Site Source for Radiation and Conduction Emission Test $\dots 1033$
The Analysis of Antenna Performance due to PCB Grounding Effect from the EMC Bead Device $\ldots 1036$
Design, Analysis and Implementation of RF/MMW Passive Circuits for Combining Yagi Antennas Using Mixed-mode S -parameters Concept
A Low Cost Elliptical Dipole Antenna Array for $60\mathrm{GHz}$ Applications
Reconfigurable Monopole Antenna for WLAN/WiMAX Applications
RF Transmit Performance Comparison for Several MRI Head Arrays at $300\mathrm{MHz}$
Pulse Train Distributed Magnetic Field Generated from High Strength Concrete Using Magnetized Olivine Stone Aggregate
Arousal Effect of Physiological Magnetic Stimulation on Car Driver's Pit of Stomach Evaluated with Electroencephalogram Using Driving Simulator
Speed-feedback, Direct-drive Control of a Low-speed Transverse Flux-type Motor with Large Number of Poles for Ship Propulsion
A 2.4 GHz Array Combination High-power Amplifier
Design and Optimization of Carrier Suppression Circuit for UHF RFID Reader Applications $\dots 1075$
Implementation of a Compact RF Module by Analysis and Fabrication for Organic Substrate with Embedded Passives
Propagation Characteristics of the Meandered Defected Ground Structure
Wideband Leveling Amplifier Design Using 0.18 μm CMOS Process
FPGA Implementation and Verification of Reed-Solomon Code in SDR System $\dots \dots 1091$
Design of a Bandwidth-enhanced Ultra Thin Metamaterial Absorber

Investigation of Parasitic Effects Induced by the Ground on LTCC Passive Components	1102
Microwave Optoelectronic Oscilator for Distribuited Receivers Operating Remotely	1107
LTE Mixer Array of 0.5 W High Output Power	1110
Design of a Highly Linear Low-noise Amplifier with Noise and Distortion Cancelation	1115
A Tunable Dual-band Bandpass Filter with Two Independently Tunable Passbands	1121
A Constant Absolute Bandwidth Tunable Combline Bandpass Filter	1126
Digital Predistortion for RF Power Amplifiers Based on Enhanced Orthonormal Hermite Pousis Neural Network	*
Design of Parallel FFT Based on FPGA in the Field of Software Radio	1134
A Correction Term for Maxwell's Equations Transformed between Galilean Reference Systems	(Part I)1138
A Correction Term for Maxwell's Equations Transformed between Galilean Reference Systems	(Part II)1142
A Large Tuning Range Ring VCO in 180 nm CMOS	1147
A Planar MIMO Antenna for Mobile Phones	
CPW-coupled-fed Circular UWB Monopole Antenna	
A Compact Branch-line Directional Coupler Using Lumped-element CRLH TLs	
Direction of Arrival Estimation Based on Maximum Likelihood Criteria Using Gravitation Algorithm	
Experimental Studies on Microwave Gunn Oscillator Based Modulator-demodulator Systems wit Modulating Signals	
Effects of Nonlinear Bias Tuning of X-band Gunn Oscillator Based Frequency Modulators	1173
Experimental Studies on the Nonlinear Interaction between a Chaotic Signal and a Periodic Microwave Frequency Range	
FPGA Implementation of LDPC Encoder with Approximate Lower Triangular Matrix	1181
A Novel Function Tuner with Microstrip Circuit for Slot Patch Antenna	1187
A Novel Design of Reconfigurable Annular Slot Active Patch Antenna	1191
A Surface-potential Based Compact Model of Gate Capacitance in GaN HEMTs	1195
Electromagnetic Forces in the Curved Octonion Spaces	1199
Research of Improved Matching Doherty Solid State Power Amplifier	1204
Research of Doherty Solid State Power Amplifier with Improved Bias Matching	1208
Analysis and Design of the Microstrip Matching for Doherty Amplifier	1211
A Novel Oscillator Based on Film Bulk Acoustic Resonator	1214
Analysis and Optimization of the Linearity and Efficiency for Doherty Amplifier	1217
Advances in the Theory of the Circular Waveguide with an Azimuthally Magnetized Ferrite and a Dielectric Toroid	
Evaluation of Correlation Detector for Ship Detection with HF Radar	
A Planar PIM-generator for Antenna PIM Test Setup	1229
Proposal of Technical Measures for a Partial Discharge Detection System Based on Real Meas	urement 1233
Author Index	1237