

# Contents

Analyzing of Coupling Region for CRLH/RH TL Coupler with Lumped-elements .....	11
Experimental Investigation of Relationship between the object- and Image Distance .....	17
Relativistic Energy Loss and Induced Photon Emission in the Interaction of a Left-handed Sphere with an External Electron Beam .....	20
Principal Component Analysis (PCA) in the Context of Radar Polarimetry .....	24
On the Geršgorin Theorem Applied to Radar Polarimetry .....	28
Multitemporal C-Band Radar Measurement on Rice Fields .....	32
A Hybrid Entropy Decomposition and Support Vector Machine Method for Agricultural Crop Type Classification .....	36
Iteration Based Polarimetric SAR Image Classification .....	41
Coherence Enhancement for Polarimetric SAR Interferometry .....	45
Initial Polarimetric Calibration Results of ALOS PALSAR .....	49
Application of the Array Scanning Method to 1D-periodic Microstrip Lines .....	54
Closed-form Expressions for Layered Media Green's Functions that are Reliable Both in the Near Field and in the Far Field .....	57
Coupling of Microstrip Lines Exciting the Magnetostatic Surface Waves .....	60
Analyses of Multimode Forming Process in a Microwave-heating Cavity .....	64
Continuous Time Model Predictive Control for a Magnetic Bearing System .....	71
Several Rules about the Magnetic Moment of Rotational Charged Bodies .....	78
The Effects of 884 MHz GSM Wireless Communication Signals on Self-reported Symptoms and Sleep — An Experimental Provocation Study .....	83
Behavioral and Cognitive Effects of MW Electromagnetic Field Exposures .....	86
Radiofrequency Exposure and Human Health .....	94
Unusual Transmission Properties of Waves in One-dimensional Random System Containing Left-handed Material .....	99
Numerical Simulation and Analysis on Mode Property of Photonic Crystal Fiber with High Birefringence by Fast Multipole Method .....	103
A Comparison of Performance of Four Methods in Solving Time Domain Integral Equations for Arbitrarily Shaped Conducting Bodies .....	109
A Method to Reduce the Oscillations of the Solution of Time Domain Integral Equation Using Laguerre Polynomials .....	114
An Integer-N Frequency Synthesizer Applied to MB-OFDM UWB 5th Band Group .....	120
Single-end Measurement of Polarization Mode Dispersion in Optical Fibers with Polarization-dependent Loss .....	125
Advances in Signal Processing to Reduce Lift-off Noise in Eddy Current Tests .....	130
A Compact Printed Antenna with Band-stop Characteristic for UWB Application .....	135
A Low-power Quadrature VCO Using Current-reused Technique and Back-gate Coupling .....	139

A Fully-integrated, Low Power, Fast-locking, Integer-N Frequency Synthesizer for MB-OFDM UWB System.....	144
A 0.7 V Transformer-feedback CMOS Low-noise Amplifier for 5-GHz Wireless LAN .....	149
A 0.75 V CMOS Low-noise Amplifier for Ultra Wide-band Wireless Receiver .....	152
Adaptive Selection of Sampling Interval in Frequency Domain for Estimating the Poles of Scatterers ...	156
Bandwidth Enhancement Technique in Microstrip Antenna for Wireless Applications .....	161
Design and Analysis of the Novel Test Tube Magnet for Portable NMR Device .....	168
Optimization Method for Passive Pole Pieces Design .....	173
Verification of BGA Package in RF Application .....	179
Measurement of Radio Frequency Magnetic Field.....	182
Temporal Analysis of Visual Search Task by Transcranial Magnetic Stimulation .....	186
Excitation of Hypersound Due to Coupling with Space Charge Waves in GaN Films .....	189
Electron Spectrum of Single n-type $\delta$ -doped Quantum Wells in Si.....	193
Shielding Design for Power Frequency Magnetic Field Produced by Substations .....	197
Analytical Design and Simulation Rescaling of Magnetically Insulated Transmission Lines .....	203
Analysis on the Shielding Effect of the Power Transformer Tank .....	208
A Miniaturized 2.45 GHz RFID Tag Antenna Using Planar Impedance Transformer .....	212
Simulation Study for the Decoding of UHF RFID Signals .....	216
A System Design for the Reader of Microwave Radio Frequency Identification .....	221
Effects of Giant Optical Anisotropy in R-plane GaN/AlGaIn Quantum Wells by Valence Band Mixing .	225
Monitoring the Earth, Ocean, and Atmosphere with Hyperspectral Remote Sensors .....	230
Two-dimensional Cross Embedded Metamaterials .....	234
Tunable Metamaterials Based on Nematic Liquid Crystals.....	239
Bistatic Electromagnetic Scattering from Randomly Rough Surfaces .....	243
Monitoring of Satellite Thermal Plareau in Relation to Concentration of Infrared Beams out of Sea Surface Waves .....	247
Monitoring Satellite Thermal Pinnacle in Relation to Spacial Spectrum of Sea Surface Waves.....	249
Data-derived SEA for Time Domain EMI Sensing of UXO .....	251
Bound States and Resonance States of $H^-$ and He Embedded in Debye Plasma Environments .....	255
The Use of the Virial Theorem and Sum-rules in Atomic Structure Calculations .....	259
Line-broadening due to Plasma Fluctuations .....	261
Stochastic Perturbation of Parabolic Law Optical Solitons.....	264
Dynamic Response of Discrete Fiber Raman Amplifiers to Multi-channel Randomly Variable Packet Traffic .....	268
A Faster Approximation of Forward Scattering by Gradient-index Particles .....	272
An optimized Scheme for Optical Phased Array Beam Steering Controlled by Wavelength .....	277
A Structure Design for the Expansion of Fiber Element Radiation Scope in Optical Phased Array .....	282
A Diagonal Split-cell Model for the High-order Symplectic FDTD Scheme .....	286
Application of Rational Function Approximation Technique to Hybrid FE/BI/MLFMA for 3D Scattering	291
A GL Metro Carlo EM Inversion.....	299
A 3D GL EM Modeling and Inversion for Forest Exploration and Felling .....	305
Multi-grid Method of Quasi Elastic Fluid Flow .....	314
Result Concerning Delay-Dependent Exponential Stability of Delayed Neural Networks .....	321

Thermal Stress Analysis of Functionally Graded Cemented Carbides .....	326
Inversion of the Wideband High-frequency Electromagnetic Data .....	336
Nondestructive Testing in Mechanical Engineering by Wave Inversion .....	341
Particular Properties in the Dielectric Response of Negative-permittivity Scatterers .....	347
Accurate Analysis of Metamaterials Involving Finite Arrays of Split-ring Resonators and Thin Wires ..	349
A Magnetic Metamaterial Composed of Randomly Oriented SRRs .....	353
Compact Rat-race Hybrid Based on Complementary Split Rings Resonators .....	357
High-pass Filters Implemented by Composite Right/Left Handed (CRLH) Transmission Lines Based on Complementary Split Rings Resonators (CSRRs) .....	360
Novel Reconfigurable Left-handed Unit Cell for Filter Applications .....	363
A CRLH Microstrip Delay Line for High-speed Electronic Circuits .....	368
Design and Application of a VNA-based Polarimetric SAR for Deep Soil Moisture Estimation .....	373
Inversion of Permittivities for Layered Rough Surfaces .....	377
Soil Moisture Algorithm Validation with Ground Based Networks .....	381
Validation of Diurnal Cycle and Intra-seasonal Variability of TRMM Satellite Rainfall .....	385
The Optimal Design of the LVDS Bus with High EMS .....	390
A Passive Optical Location with Limited Range .....	395
Model of a Reactor Chamber with Microwave Heating .....	399
Design, Numerical Analysis and Test of HF Absorber .....	403
Properties and Numerical Simulation of $\text{CaCl}_2 \cdot 6\text{H}_2\text{O}$ Phase Change .....	408
Turbulence Modeling of Air Flow in the Heat Accumulator Layer .....	413
Identifying of the Special Purpose Generator Pulses .....	418
A Simple Numerical Simulation of Internal Structure of Particles Test .....	423
Numerical Model of Optimization of the Lead-acid Accumulator Grids .....	427
Numerical Modeling of the Special Light Source with Novel R-FEM Method .....	432
Numerical Modeling of Accuracy of Air Ion Field Measurement .....	436
Microwave Applications in Growth and Physical Property Measurements of Nanomaterials .....	440
Complex Dielectric Measurement Using $\text{TM}_{010}$ Cylindrical Cavity .....	444
Spectroscopic Characterization of $\text{Ba}(\text{Mg}_{1/3}\text{Ta}_{2/3})\text{O}_3$ Dielectrics for the Application to Microwave Com- munication .....	448
Improving the Characteristics of $\text{Ba}_2\text{Ti}_9\text{O}_{20}$ Materials by Using Pre-reacted Ba-Ti-O Compounds .....	453
Low-temperature Crystallization of Lead Zirconate Titanate Thin Films Using 2.45 GHz Microwaves ...	458
Raman Interpretation of Microwave Properties of $x\text{Ba}(\text{Mg}_{1/3}\text{Ta}_{2/3})\text{O}_3 + (1-x)\text{Sr}(\text{Mg}_{1/3}\text{Ta}_{2/3})\text{O}_3$ Ce- ramics .....	460
Image Subtraction Analysis for Finger Color Variation .....	463
Influence of Micro-particle Surface Roughness on TAOS Patterns: Experimental and Theoretical Studies	467
The Quest for Detection and Identification of Bio-aerosols .....	470
Angle-resolved Measurement and Simulations of Mueller Matrix Elements of B-cells and HL60 cells ...	474
<i>In Vivo</i> Measurement and Modeling of Multispectral Reflectance Images for Melanoma Diagnosis ...	477
Treatment of Solid Malignant Tumors with Microwave Balloon Ablation Catheters and Localized Chemother- apy .....	481
Vibrational Medicine: A Closer Look at Homeopathics .....	484
Issues in Wireless Intracranial Pressure Monitoring at Microwave Frequencies .....	488
Simulation of a Wideband Pulsed Radar for Indoor Environments Using FDTD .....	493

Propagation of Electromagnetic Waves in Amazon Rain Forest Environment .....	499
Development of a Methodology for Infrared Aircraft Emission Estimation .....	504
Measurements of Reflectivity and Complex Permittivities of Radar Absorbing Materials Based on Conducting Polymers .....	510
Practical Aspects of the Characterization of Ferrite Absorber Using One-port Device at RF Frequencies	514
Adaptive Multiple Target Tracking Systems for Airfield Surveillance Radar .....	519
The Features of the Angular Spectrum of Scattered Radiation by Turbulent Collisional Anisotropic Magnetized Plasma .....	522
Occupational Exposure Assessment of the Static Magnetic Flux Density Generated by Nuclear Magnetic Resonance Spectroscopy for Biochemical Purposes .....	528
A Memory-efficient Strategy for the FDTD Implementation Applied to the Photonic Crystals Problems	532
Fast Computation of Electromagnetic Wave Propagation and Scattering for Quasi-cylindrical Geometry	537
On the Validity of Physical Optics for Narrow-band Beam Scattering and Diffraction from the Open Cylindrical Surface .....	542
Beam-shaping PEC Mirror Phase Corrector Design .....	547
A Novel Time-domain Integration Method for Transient Analysis of Nonuniform Transmission Lines ...	552
Building Optimal Statistical Models with the Parabolic Equation Method .....	555
Echo Extraction Method for a Ground Penetrating Radar .....	560
Reaction Sintering Process for Improving the Microwave Dielectric Properties of Ba <sub>2</sub> Ti <sub>9</sub> O <sub>20</sub> Materials .	563
The Study on Anti-jamming Capability of UTP Applied in Vehicle CAN Bus .....	568
The Quasi-elliptic Bandpass Filter Using Quarter-wavelength Stepped Impedance Resonators .....	572
New Type Piezomagnetic Ferrite Materials and Their New Applications .....	576
Debye Series Analysis of Forward Scattering by a Multi-layered Sphere .....	581
Comparison of Two Drain Modulator for Multi-mode Multi-band Transmitters Employing EER Technique .....	585
Electronic Structure as a Function of Temperature for Si $\delta$ -doped Quantum Wells in GaAs .....	589
p-n-p $\delta$ -doped Quantum Wells in GaAs .....	593
Dynamic Behaviors of PbS Irradiated by Laser Pulse .....	597
Dynamic Behavior of a Mono-coil Linear Actuator .....	601
Time Variant Thresholds — Automatic Adjustment When Filtering Signals in MR Tomography .....	605
A Slotted Coaxial Antenna as an Alternative to Wire Dipole Antennas .....	610
Study of Certain Subband-based Adaptive Modulation Schemes in an OFDM System .....	614
Study of the Optimal Switching Levels of Adaptive Modulation for a Two-user System under Constant Power Condition .....	618
Backbone Network Logical Design for Connecting between Sub-networks with WDM System .....	622
Laser Speckle Imaging of a Finger by Scattered Light Optics .....	627
Electrokinetic Mixing Using Electrical Conductivity Gradients and Electric Field Intensity Perturbations	631
Numerical Analysis of Curved Surface Perforated Periodically with Apertures .....	637
Unit Cell Models for Composite Right/Left-handed Transmission Lines (CRLH-TL) Metamaterials ...	641
An Improved Design of Feed-forward Power Amplifier .....	645
Design of a Low Power, High Performance BICMOS Current-limiting Circuit for DC-DC Converter Application .....	650
Analysis of Composite Right/Left-handed Coplanar Waveguide Zeroth-order Resonators with Application to a Band-pass Filter .....	656
A New Type of Microstrip Coupler with Complementary Split-Ring Resonator (CSRR) .....	660

Equations for the Interaction between Deformation and Electromagnetic Field .....	664
A Novel Analysis for Circular-groove Guide .....	668
Approximate ML Detection Based on MMSE for MIMO Systems .....	672
Realization of Impedance Boundary in Terms of a Slab of Wave-guiding Medium .....	678
Size Reduction of SRRs for Metamaterial and Left Handed Media Design .....	680
S-shaped Patch Antenna Fed by Dual Offset Electromagnetically Coupled for 5–6 GHz High Speed Network .....	684
Realization of Generalized Soft-and-hard Boundary .....	688
UPML Absorbing Boundary Condition for Truncating the Boundary of DNG Metamaterials .....	691
A Fast Volume-surface Integral Equation Solver for Scattering Properties of NIMs .....	696
Novel Sequential Monte Carlo Method to Bearing Only Tracking .....	701
Applications of Pseudo-polar FFT in Synthetic Aperture Radiometer Imaging .....	708
Backscattering Border Effects for Forests at C-band .....	714
Effects of Fresnel Corrections in the Scattered Field of General Ellipsoids .....	719
Toolbox for Calculation of Optical Forces and Torques .....	721
Generation of Magnetic Fields: Various Multipolar Seed Fields .....	726
Numerical Model of Inductive Flowmeter .....	731
New Numerical Technique for Non-destructive Testing of the Conductive Materials .....	736
Perturbation of Singular Chasma Equation .....	741
Post-magneto-hydrodynamics .....	745
Helicity or Vortex Generation in Hydrodynamic (HD), Magneto-hydrodynamic (MHD), and Electrohydrodynamic (EHD) Regimes .....	750
The 3D GL EM-Flow-Heat-Stress Coupled Modeling .....	754
Reconstructing Properties of Subsurface from Ground-penetrating Radar Data .....	761
Study on Transmission Characteristic of Split-ring Resonator Defected Ground Structure .....	767
3D GL EM and Quantum Mechanical Coupled Modeling for the Nanometer Materials .....	772
Radiated EMI Recognition and Identification from PCB Configuration Using Neural Network .....	777
Recognition and Identification of Radiated EMI for Shielding Aperture using Neural Network .....	782
High Sensitivity Electro-optic Magnetic Field Probe .....	786
Microstrip Coupled Line Filters with Spurious Band Suppression .....	790
Low-pass Elliptic Filters Using Mixed Microstrip-CPW Technologies .....	793
An Improved BSIM4 Model for 0.13- $\mu\text{m}$ Gate-length High Linearity CMOS RF Transistors .....	796
Enhanced Stop-band Rejection by Symmetric Feeding in 1.8 GHz Cross-coupled Planar HTS Microwave Filters .....	801
A 10-GHz Low Phase Noise Differential Colpitts CMOS VCO Using Transformer Coupling Technology .....	807
Error Analysis and Compensation Algorithm for Digital Predistortion Systems .....	811
Interaction Mechanism of a Field Emission Based THz Oscillator .....	815
A Small Multi-band MEMS Switched PIFA .....	820
Three-band Modified Transmission Line Antennas for Mobile Communication .....	825
A Novel Compact Artificial Magnetic Conductor Based on Multiple Non-grounded Vias .....	828
Gain Enhancement for Reflectarray .....	832
Signal Attenuation of Ka Band Noise due to Rain from Small Aperture Antenna .....	836
On Analysis of Planar Antennas Using FDTD Method .....	841

Design Narrow Slot Antenna for Dual Frequency .....	846
A Recursive Street Canyon Model for Low Height Terminal System.....	851
<b>Author Index</b> .....	855

# Contents

Strongly Coupled Electro-optic Superlattices and the Potential as Metamaterials .....	871
The Classical Structure Model of Single Photon and Classical Point of View with Regard to Wave-particle Duality of Photon.....	875
Longitudinal Power Distribution and Corresponding Temperature Distribution in a RF Waveguide CO <sub>2</sub> Laser .....	881
Lasng Dynamics of a Novel Silicon Photonic Crystal Cavity.....	886
Using Intrinsic Layer to Improve the Efficiency of Organic Solar Cells .....	891
Effects of Nitridation Time on Top-emission Inverted Organic Light Emitting Diode .....	895
Effects of Isolation-layer on Luminance Efficiency of Organic Light-emitting Diodes .....	899
Beam Propagation in Laser Scattering Communication .....	902
Entanglement Theory and a $q$ Analogue Entangled State .....	904
Influence of Electro-optic Effect on Wave-guide Efficiency of Optical Fiber with Cladding Made of Uni-axial Crystal Materials .....	908
Diffraction by a Kerr-type Nonlinear Dielectric Layer .....	913
1D Canonical and Perturbed Quantum Potential-well Problem: A Universal Function Approach .....	918
On the Calculation of Polynomially Perturbed Harmonic Oscillators .....	923
On the Determination of Eigenpairs of 2D Positive Differential Operators with Periodic Boundary Con- ditions.....	927
A Theoretical Study of Particle Plasmons for Single and Multiple Metallic Nanospheres .....	931
Spectrum Compression of a Short Pulse from a Central Obstructed Circular Aperture in the Far-field ..	934
Optimization of the Coupling of the Surface Plasmon Re-emitted from Silver Nanorods .....	938
Improvement of PAE in Doherty Amplifier Using Dual Bias Control and PBG Structure.....	940
Very Low Power Single-ended Cross-coupled Oscillator in CMOS Technology .....	944
Cascode Feedback Amplifier Combined with Resonant Matching for UWB System.....	947
Compact Surface-mount Wideband and Multi-band Internal Chip Antenna for Mobile Handset .....	951
Broadband Internal Antenna for Mobile DTV Handsets .....	955
A Compact Band-selective Filter and Antenna for UWB Application .....	959
Optical Generation of mm-Wave Signal with Wide Linewidth Lasers for Broadband Communications ..	963
Characterization of a Self-complementary Sierpinski Gasket Microstrip Antenna .....	969
Characteristics Study of Four Coplanar Waveguide Feeding Devices .....	973
Broadband Microstrip Patch Antenna Fed by a Novel Coupling Device .....	977
A Novel Wideband Antenna Design Using U-slot .....	980
Couple-fed Circular Polarization Bow Tie Microstrip Antenna .....	984
Lightwave Technique of mm-Wave Generation for Broadband Mobile Communication.....	989
Investigate Rectangular Slot Antenna with $L$ -shaped Strip .....	994
Design of high- $Q$ Cavities in Photosensitive Material-based Photonic Crystal Slab Heterostructures .....	998

Tunable Photonic Crystal Based on SOI.....	1001
Optical Properties of Mesoscopic Systems of Coupled Microspheres.....	1006
2D Photonic Crystals in Chalcogenide Glass.....	1009
Photonic Crystals in Diamond for Quantum Information Technology.....	1013
Broadband Slow Light and Nonlinear Switching Devices.....	1017
Making Quarter Wavelength Notch Antennas Wideband.....	1022
A Frequency Notched Inverted-trapezoid UWB Antenna.....	1025
The Design of an UWB Antenna with Notch Characteristic.....	1029
Adaptive Wideband Beamforming with Combined Spatial/Temporal Subband Decomposition.....	1033
Magnetic Plasmon Propagation along a Chain of Connected Subwavelength Resonators at Infrared Frequencies.....	1039
Plasmonics — The Missing Link between Nanoelectronics and Microphotonics.....	1043
Linear, Nonlinear and Ultrafast Behavior of Surface Plasmon Polaritons in Nanostructures.....	1046
Modeling Lightning Attachment to Tall Towers.....	1051
Electromagnetic Scattering from an Arbitrarily Shaped Three-dimensional Inhomogeneous Bianisotropic Body.....	1057
Numerical Analysis of a Virtual Optical Probe Based on Surface Plasmon Polariton.....	1062
Directivity of Light Transmission through a Single Subwavelength Aperture without Plasmon Resonance.....	1065
Scattering by a Finite Strip Under Complex Beam Incidence—Asymptotic Evaluation in the Complex Space Domain.....	1070
Transient Scattering from Arbitrarily Shaped Two-dimensional Objects Located on a Rough Surface.....	1075
ISAR Image Modeling of Aircraft with Propeller Blades.....	1079
A High-frequency Hybrid Method to Calculate EM Scattering of a Three-plate Cavity.....	1083
The MOM Solution Combining Hybrid Domain Bases and Wire-grid Model for Scattering by Complex Targets.....	1087
EM Scattering from Complex Targets above a Slightly Rough Surface.....	1092
Effects of Different Parameters on Attenuation Rates in Circular and Arch Tunnels.....	1096
Design and Characterization of Biophotonics Devices.....	1101
Plasmonics in Metal-clad Terahertz Waveguides.....	1106
Numerical Simulation Analysis of an Optical Virtual Probe Based on Surface Plasmon Polaritonic Band-gap Structures.....	1112
Hybrid Numerical Simulation of Electrostatic Force Microscopes Considering Charge Distribution.....	1118
Characteristics of Scattered Fields from Hydrocarbon Layers in Seabed Logging.....	1123
Modeling the Response of a Seafloor Antenna in the Limits of Low Frequency and Shallow Water.....	1127
Comparison of Different Finite-difference Schemes of Modeling Marine Controlled-Source Electromagnetic Fields for Hydrocarbon Exploration.....	1132
The New Progress in Near-surface Seafloor Exploration by Transient Electromagnetic Method.....	1136
Study of the High Frequency Magnetotelluric Sounding for Prospecting the Deep and Periphery Mine by RRI Inversion.....	1139
Modeling of 3D MCSEM and Sensitivity Analysis.....	1145
The Electromagnetic Responses of Under Seabed Layer and Inversion Method Study.....	1150
Remote-control in Transient Electromagnetic System for Shallow Seafloor.....	1155
Modeling of Seabed Logging Data for a Sand-shale Reservoir.....	1158
Multi-component Processing of Sea Bed Logging Data.....	1163
Comparison of Antenna Types and Orientations for Detecting Hydrocarbon Layers in Seabed Logging.....	1168

Nonlinear Dynamics of Temporal Optical Soliton Molecules in Lasers .....	1172
Realization of a Cavity-soliton Laser Based on Broad-area Vertical-cavity Devices with Frequency-selective Feedback .....	1175
Dynamics of a Semiconductor Laser with Two External Cavities .....	1178
Incoherent Writing and Erasure of Cavity Solitons in an Optically Pumped Vertical-cavity Semiconductor Optical Amplifier .....	1183
Excitability Mediated by Localized Structures in Kerr Cavities .....	1187
Dissipative Structures in Metamaterial Optical Resonators .....	1192
Stability of Dissipative Solitons as Solutions of Asymmetrical Complex Cubic-quintic Ginzburg-Landau Equation .....	1196
Improved Interpolation of Evanescent Plane Waves for Fast Multipole Methods .....	1200
Searching for Electrostatic Resonances in Metamaterials Using Surface Integral Equation Approach ...	1203
Efficient Preconditioning Strategies for the Multilevel Fast Multipole Algorithm .....	1207
The Edge Finite Element Method for Magnetic Fields Excited by Artificial Source in Frequency Domain	1212
The Distributions of Electromagnetic Fields Excited by Magnetic Dipole on Ragged Surface .....	1217
A 3D-2D AGILD EM Modeling and Inversion Imaging .....	1221
Application of CSAMT Method for Exploring Coal Mine in Fujian Province, Southeastern China .....	1228
Study of Bubble Size Distribution for Breaking Wave Propagates over a Submerged Dike .....	1242
Least-squares Mixed Finite Element of Steady State Viscoelastic Fluid Flow .....	1246
Frequency Response of Tri-axial Induction Logging Tool .....	1251
Simultaneous Measurement of Capillary Pressure and Dielectric Constant in Porous Media .....	1254
Numerical Simulation for the Effective Conductivity of Composite Medium in High Frequency .....	1259
Stitching a Reference Plane Split Using Routing Layer Traces to Improve I/O Bus Signal Integrity ...	1264
Signal Waveform Distortion on Terminatorless Transmission Line of UART-CSMA/CD Control Network	1268
Input Impedances and Current Distributions for Meander Line Antennas with Planar Coupled Parasitic Meander Element .....	1273
Conceptual Design of A High Resolution, Low Cost X-Band Airborne Synthetic Aperture Radar System	1277
A Real-time Hybrid Correlator for Synthetic Aperture Radar Signal Processing .....	1282
Analysis of Electromagnetic Wave Propagation in Out-door Active RFID System Using FD-TD Method	1286
Arbitrary Optical Waveform Generation Using Planar Lightwave Circuits .....	1289
Investigation of Crosstalk Effects due to Optical Fiber Nonlinearities in WDM CATV Networks .....	1294
Code Recognition for Optical Time-series WDM Coded Label Using Acoustooptic Switch Array .....	1297
Spatial Filtering Characteristics of Transmitted and Scattered Nano-meter Electromagnetic Waves and X-rays in Bio-medical Media by Waveguide-type Grids .....	1302
FDTD Computational Analysis of X-ray Transmission and Scattering Characteristics in Medical Imaging Diagnosis .....	1309
Photonic-crystal Lens Coupler Using Negative Refraction .....	1315
Photonic Crystals with Hexagonal Periodicity for Efficient Light Emission LED .....	1320
Numerical Study on Two-dimensional Magnetic Photonic Crystals Made of Magnetized Ferrites .....	1325
Electrically Tunable 2-D Organic Photonic Crystal Lasers .....	1328
2D Nonlinear Photonic Crystals Nanocavities in Chalcogenide for All-optical Processing .....	1332
Observation of Whispering Gallery Resonances in Circular and Elliptical Semiconductor Pillar Micro-cavities .....	1335
Electromagnetically Induced Transparency in Photonic Crystal Cavities .....	1338
Design of Photonic Crystal Resonant Cavity Using Overmoded Dielectric Photonic Band Gap Structure	1341

Finite Element Analysis of Photon Density of States for Two-dimensional Photonic Crystals with In-plane Light Propagation.....	1344
Combined Depth Migration and Constrained Inversion of Low Frequency Electromagnetic Data .....	1349
Study on Work Parameters of Seafloor Towed Survey Using Transient Electromagnetic Systems.....	1352
TDEM by FDEM.....	1356
Green's Function Retrieval by Crossconvolutions .....	1361
Solving Electromagnetic Inverse Scattering Problems by SVRMs: a Case of Study Towards Georadar Applications .....	1366
A Ground-wave Technique for Pavement Permittivity and Thickness Estimation from GPR Data .....	1371
Comparison between Impulse and Holographic Subsurface Radar for NDT of Space Vehicle Structural Materials .....	1375
Analysis of Time Domain Ultra-Wide-Band Radar Signals Reflected by Buried Objects .....	1379
Bifurcations of Double Bullet Complexes in Dissipative Systems .....	1383
Interaction of Solitary Waves Governed by a Controlled Subcritical Ginzburg-Landau Equation .....	1388
Chirped Self-similar Pulse Propagation in Cubic-quintic Media .....	1392
Simulation of Electromagnetic Pulse Propagation through Dielectric Slabs with Finite Conductivity Using Characteristic-based Method.....	1400
Broadband PLC Radiation from a Power Line with Sag .....	1405
A Novel Broadband Quasi-fractal Binary Tree Dipole.....	1408
Hybrid Nyström-PO Method for 3D EM Scattering and Its Application .....	1412
A Novel Mesh-free Method for Electromagnetic Scattering from a Wire Structure.....	1415
Evaluating Surface Impedance Models for Terahertz Frequencies at Room Temperature.....	1418
Reduction of Monostatic RCS by Switchable FSS Elements.....	1424
Shimming Permanent Magnet of MRI Scanner .....	1428
Research on Target-field Method for Designing Gradient Coil in Permanent-magnet MRI System .....	1434
A New Target Field Method for Optimizing Longitudinal Gradient Coils' Property .....	1438
A New Method for Shimming a Magnetic Field in NMR System .....	1443
A New Eddy-current Compensation Method in MRI.....	1447
Calculating Efficient Noise Resistance of RF Coils for Low Field MRI Systems.....	1452
On the Radio-frequency Power Requirements of Human MRI .....	1456
Comparison of Maximum Induced Current and Electric Field from Transcranial Direct Current and Magnetic Stimulations of a Human Head Model.....	1460
Magnetic Field Produced by Compound Action Potential of Degenerated Human Nerve .....	1465
EM Methods for MIC Modeling and Design: An Overview .....	1468
CAD of Left-handed Transmission Line Bandpass Filters .....	1473
Optimal Shape Design of the Electromagnetic Devices in a Level Set Based Implicit Moving Boundary Framework.....	1479
Optimal Model for Wiggly Coupled Microstrips in Directional Coupler and Schiffman Phase Shifter ..	1484
A Simple Technique for Efficient Computation of Electromagnetic Coupling in Microwave Integrated Circuits.....	1488
On Quantum Corrections to Space Charge Waves in Silicon .....	1493
Parametric Models for Electromagnetic Field Systems Related to Passive Integrated Components.....	1497
Space Mapping and Neuro-space Mapping for Microwave Design.....	1502
Applications of Artificial Neural Network Techniques in Microwave Filter Modeling, Optimization and Design.....	1505

Neural-based Transient Behavioral Modeling of IC Buffers for High-speed Interconnect Design .....	1510
A Space-Mapping Based CAD Methodology for Modeling Temperature Characteristics of Combinational Resonators .....	1513
A Chebyshev Tapered TEM Horn Antenna .....	1518
Low Power Dissipation SEU-hardened CMOS Latch .....	1522
Mutual Coupling of Rectangular DRA in a Four Element Circular Array .....	1527
Wideband Microstrip Antenna Array Using U-slot .....	1532
Numerical and Experimental Analysis of Bow-tie Antennas with Changing of Shield's Height .....	1536
Terahertz Radiation from the Grating Waveguide Loaded Plasma .....	1539
A Novel Linear Beamforming Algorithm .....	1543
The Performance of QSP Beamformer with Array Errors .....	1547
Accurate Defect Mode Modelling in Photonic Crystals Using the Generalised Fictitious Source Superposition Method .....	1551
On Local Bianisotropic Metamaterials .....	1556
A Bianisotropic Left-handed Metamaterials Composed of S-ring Resonator .....	1561
The Bragg Scattering Properties on One-dimensional Composite Right/Left-handed Transmission Line .....	1567
A Microstrip Highpass Filter with Complementary Split Ring Resonators .....	1571
High Directive Cavity Antenna Based on 1D LHM-RHM Resonator .....	1575
Imaging of Objects through Lossy Layer with Defects .....	1578
A Two-scale Model for Composite Rough Surface Scattering .....	1584
A Modified Scheme of Sparse-matrix Canonical-grid Method for Rough Surface Scattering Using Interpolating Green's Function .....	1588
Buffered Block Forward Backward Method with Relaxation for 3D Scattering Problems .....	1591
Application of the Stochastic Second-degree Iterative Method to EM Scattering from Randomly Rough Surfaces .....	1597
Numerical Analysis of SPM and XPM Penalties of the Conventional IM-DD System with NRZ and RZ Format .....	1601
Dispersion Relationships of AlGaInAs-InP DBR Gratings Using Floquet-Bloch Theory .....	1604
Dispersion Relationships of AlGaInP-InP Surface-emitting Lasers Using Floquet-Bloch Theory .....	1607
Avalanche Photodetector Design for the Mid-infrared Using GaSb-based Alloys .....	1610
High-quality Ultra-uniform Quantum Dot (QD) Fabrication Techniques for High-performance Terahertz Quantum Cascaded Laser .....	1617
Applications of Modular RBF/MLP Neural Networks in the Modeling of Microstrip Photonic Bandgap Structures .....	1623
Mobile Broadband: The Emergency of IEEE 802.16e .....	1629
Rectangular Slot Resonator with Four Dielectric Layers .....	1632
Multilayer Planar Resonators with Superconductive Patch on PBG Substrate .....	1638
Photonic Crystal at Millimeter Waves Applications .....	1642
Novel Neural Network Models of $Q$ -Type Integrals and Their Use for Circular-loop Antenna Analysis .....	1648
Coupled-mode Theory for Spun 4-lobe Stress Region Fibers .....	1653
The Effect of Radiation Coupling in Higher Order Fiber Bragg Gratings .....	1657
Applications of Cladding Stress Induced Effects for Advanced Polarization Control in Silicon Photonics .....	1662
Analysis of Crosstalk between Single-ended and Differential Lines .....	1667
A Study of the Confirming Method on 20H Rule in High Speed PCB Design .....	1672
De-embedding Techniques for Passive Components Implemented on a 0.25 $\mu\text{m}$ Digital CMOS Process .....	1677

Extraction of Subterahertz Transmission-line Parameters of Coplanar Waveguides .....	1682
Design of MEMS Controlled Phased Shifter Using SCT.....	1687
Waveguide Analysis Using Multiresolution Time Domain Method.....	1690
Application of FDTD-overlapping Integral Method in Simulation of Waveguide Amplifier .....	1693
Reliability Analysis of the Circuit and FM Modulation Parameters for the First Harmonic Level Reduction of the Forward Switching Power Supplies .....	1697
Beam-wave Coupling in a Double-beam Gyrotron Traveling Wave Amplifier .....	1703
BOR-FDTD Analysis of Spherical Lens Multi-beam Antenna .....	1707
Rolled Dipole Antenna for Low-resolution GPR .....	1710
Viability of Convex-modulated Exponential Serrations for Improved Performance of CATRs .....	1714
Antenna Design for Ultra Wideband Application Using a New Multilayer Structure.....	1718
Dual-band CPW-fed G-shaped Monopole Antenna for 2.4/5 GHz WLAN Application.....	1725
Design CPW Fed Slot Antenna for Wideband Applications.....	1730
e-Shaped Slot Antenna for WLAN Applications .....	1734
<b>Author Index</b> .....	1739