

# Contents

---

## Part I Electromagnetic Theory

---

<b>Wave Models for Networks and Fields</b> C. Christopoulos, P. Sewell, and J. Paul .....	3
<b>Electromagnetic Field Interaction with a Transmission Line</b> J. Russer, A. Cangellaris, and P. Russer .....	13
<b>Scattering of a Plane-Wave by a Moving Half-Plane: A Full Relativistic Study</b> M. İdemen and A. Alkumru .....	27
<b>High-Frequency/Short-Pulse Wave Dynamics in Ray-Chaotic Scenarios: A Survey</b> V. Galdi, G. Castaldi, V. Fiumara, V. Pierro, I. M. Pinto, and L. B. Felsen .....	37
<b>Numerical Modeling and Simulation Studies of 2D Propagation over Non-flat Terrain and Through Inhomogeneous Atmosphere</b> Ç. Uluışık and L. Sevgi .....	45
<b>Fast Integral Equation Solutions: Application to Mixed Path Terrain Profiles and Comparisons with Parabolic Equation Method</b> C.A. Tunç, F. Akleman, V.B. Ertürk, A. Altıntaş and L. Sevgi.....	55
<b>A Pole Matching Method for the Analysis of Frequency Selective Surfaces</b> A. Cucini, M. Nannetti, F. Caminita and S. Maci.....	65
<b>About Complex Extensions and Their Application in Electromagnetics</b> M.J.G. Morales, C.D. Martinez and E.G.-Ribas .....	81
<b>Radiation of Sound from a Semi-Infinite Rigid Duct Inserted Axially into a Larger Infinite Tube with Wall Impedance Discontinuity</b> A. Büyükaksoy and A. Demir .....	87

## VIII

<b>Scattering by a Perfect Conducting Elliptic Cylinder Immersed Halfway Between Two Half Spaces</b> A. Kamel and E. Niver .....	97
<b>Pattern Nulling of Offset Parabolic Reflector with Array Feed</b> B. Saka and A. Selçuk .....	105
<b>Tapered Dielectric Rod Antenna</b> E. Niver .....	113
<b>Design Alternatives of Spiral Antenna Arrays for Wireless Applications</b> G. Çakir and L. Sevgi .....	123
<b>Analysis of Multiple Vertical Strips in Planar Geometries via DCIM-MoM</b> T. Önal, N. Kinayman and M. İ. Aksun .....	133
<b>A Matlab-based Filter Design Tool Using the Analogy between Wave and Circuit Theories</b> G. Çakir, S. Gündüz and L. Sevgi .....	141
<b>A Generic Microstrip Structure with Broadband Bandstop and Bandpass Filter Characteristics</b> G. Çakir and L. Sevgi .....	149
<b>Analysis of Waveguide Structures by Combination of the Method of Lines and Finite Differences</b> R. Pregla .....	157
<b>Resonator Characterization by Microwave Active Circuits</b> C. Akyel .....	167
<b>Performance Evaluation in Optical Burst Switched Networks</b> S. Parlar and E. Topuz .....	177
<b>Nonlinearity and Multiscale Behaviour in Ocean Surface Dynamics: An Investigation Using HF and Microwave Radars</b> S. Anderson, C. Anderson and J. Morris .....	185
<b>Fine Tuning of Printed Triangular Monopole</b> C. Işık .....	197
<b>A Chiralic Circuit Element and Its Use in a Chiralic Circuit</b> T. Şengör .....	203

---

**Part II Circuit Theory**


---

<b>Dynamical Systems Analysis Using Differential Geometry</b>	
J.-M. Ginoux and B. Rossetto .....	213
<b>r-Neighbourhood Impact on the Behaviour of 2D Cellular Automata Model of Complex Interactions</b>	
A. Porebska .....	221
<b>Stability of CNN with Trapezoidal Activation Function</b>	
E. Bilgili, İ.C. Gökner, O.N. Uçan and M. Albora .....	225
<b>Applications of CNN with Trapezoidal Activation Function</b>	
E. Bilgili, İ.C. Gökner and O.N. Uçan .....	235
<b>A CNN-based Fingerprint Verification System</b>	
Q. Gao and G.S. Moschytz .....	243
<b>Hardware Architectures for the Evolution of Cellular Automata Functionality</b>	
M. Glesner, O. Soffke and P. Zipf .....	257
<b>Current Mode Double Threshold Neuron Activation Function</b>	
M. Yildiz, S. Minaei and İ. C. Gökner .....	267
<b>Gradient Networks for Clustering</b>	
H. Doğan and C. Güzelış .....	275
<b>On a matrix inequality and its application to the synchronization in coupled chaotic systems</b>	
C.W. Wu .....	279
<b>Rigorous Study of Chua's Circuit in Terms of Periodic Orbits</b>	
Z. Galias .....	289
<b>Complex Behavior and its Analysis in Chaotic Circuits Networks with Intermittency</b>	
Y. Uwate, Y. Nishio and A. Ushida .....	297
<b>Bifurcations in Noisy Nonlinear Networks and Systems</b>	
W. Mathis .....	305
<b>When is a Linear Complementarity System Controllable?</b>	
M.K. Çamlıbel .....	315

<b>A Simple Artificial Neural Network Structure For Generating Chaos</b>	
N.S. Şengör.....	325
<b>Advanced Signal Processing Algorithms for Wireless Communications</b>	
E. Panayirci and H.A. Çirpan .....	333
<b>A Clock-controlled Stream Cipher with Dual Mode</b>	
İ. Ergüler and E. Anarim .....	343
<b>Modeling Controller Area Networks Using Discrete Event Simulation Technique</b>	
C. Bayılmış, İ. Ertürk, C. Çeken, and İ. Özçelik.....	353
<hr/>	
<b>Part III</b>	
<hr/>	
<b>Laudation on Professor Leopold B. Felsen</b>	
L. Sevgi .....	361
<b>Laudation on Professor Leon O. Chua</b>	
İ. C. Gökner .....	377
<b>Professor Felsen's Reply</b>	
L. B. Felsen .....	387
<b>Photo Gallery</b> .....	401
<b>Index</b> .....	411

Complex Computing-Networks

Brain-like and Wave-oriented Electrodynamic Algorithms

Göknar, I.C.; Sevgi, L. (Eds.)

2006, X, 398 p., Hardcover

ISBN: 978-3-540-30635-1