PROCEEDINGS OF THE SIXTEENTH
NATIONAL RADIO SCIENCE CONFERENCE
NRSC’99

National Radio Science Committee
Academy of Scientific Research and Technology

Faculty of Engineering
Ain Shams University
Cairo - EGYPT
Feb. 23-25, 1999
LIST OF PAPERS

INVITED PAPERS

INV1 The European VLBI Network, Its New Data Processor at JIVE, and Opportunities for Expansion
Richard T. Schilizzi (Joint Inst. for VLBI in Europe, Netherlands).

INV2 Remote Monitoring of Nuclear Explosions During Radio Sounding of Ionosphere Over Explosion Site
Krasnov, V. M. (Academy of Sciences, Kazakhstan).

INV3 New Generation Internet and the Evolution Towards Active and Programmable Networks (Survey)
M. Adeeb R. Ghonaimy (Ain Shams Univ.).

INV4 Co-Polar and Cross-Polar Measurements of the Re-Radiation Signal at 20 GHz from a Tree and their Analysis in the Region Around the Nulls
R. Caldeirinha and M. O. Al-Nuaimi (Glamorgan Univ., U.K.).

INV5 Reconstruction of the Dyadic Dielectric Constant Profile of Anisotropic Inhomogeneous Media
A. S. Omar (Magdeburg Univ., Germany).

Commission B: Fields and Waves

B1 Transmission Through a Metallic Holes Arranged for Applications in Microwave Circuits
A. Zeid and H. Baudrand (Toulouse, France).

B2 Propagation of X-wave in a Planar Layered Medium
Ahmed M. Attiya, Essam A. El-Diwany (El. Res. Inst.) and Amr M. Shaarawi (Cairo Univ.).

B3 Generation of an Approximate TE Electromagnetic X-wave in Free Space Using Huygens’ Aperture
Ahmed M. Attiya, Essam A. El-Diwany (El. Res. Inst.) and Amr M. Shaarawi (Cairo Univ.).

B4 A 3D Modified FDTD (2,4) Algorithm for Improving Phase Accuracy with Low Resolution

B5 Blind Beamforming and Signal Detection by Antenna Arrays Using Higher Order Statistics
Said E. El-Khamy and Wafaa I. Kassem (Alex. Univ.).
B6 Caustic-Fed Cylindrical Reflector Antennas
Said E. El-Khamy and Yasser H. Elkamchouchi (Alex. Univ.).

B7 An Eigen Space Approach for the Synthesis of Circular Arrays
Abd El-Fatah A. Abou-Hashem and Said E. El-Khamy (Alex. Univ.).

B8 Extremely Small High Power MW Broadcasting Antennas
F. M. Kabbary, M. Khattab, A. Fayoumi (Egyptian Radio & TV Union), A. M. Swidan (Ain Shams Univ.) and M. C. Hately (Hately Antenna Tech., UK).

B9 A Simple Analytical Approach to Optical RIB Waveguides
A. M. Zaghloul (Zagazig Univ.) and A. A. Abou El-Fadl (Menoufia Univ.).

B10 Study of the Coupling Performance of Multimode Optical Fiber Coupler
A. A. Abou El-Fadl, G. E. Elabid (Menoufia Univ.), SH. M. Eladl and M. S. I. Rageh (Nat. Center for Rad. Res. & Tech.).

B11 Microstrip Parallel Coupled Lines Band-Pass Filters; Analysis, Design and Sensitivity
Maher Abd El-Razzak (Mansoura Univ.), Nagy El-Desouky (Egyptian Radio and TV Union) and Hamdi El-Mikati (Mansoura Univ.).

Commission C : Signals and Systems

C1 Pulse Width Multiplier Circuit with Application to Digital Phase Measurements
M. Abou El-Ela (Ain Shams Univ.) and A. Abd El-Tawab Telba (King Saud Univ.).

C2 High Speed PLL Frequency Synthesizer with Synchronous Frequency Sweep
M. Abou El-Ela (Ain Shams Univ.).

C3 Realization of FPGA-Based Two Dimensional Discrete Cosine Transform
Helal Ibrahim Helal, Aly Ezzat Salama (Cairo Univ.) and Samia Mashali (El Res. Inst.).

C4 Switched Capacitor PLL Frequency Synthesizer
M. Abou El-Ela (Ain Shams Univ.).

C5 Image Contrast Enhancement Using Homomorphic Processing and Adaptive Filters
Mohiy M. Hadhoud (Menoufia Univ.).

C6 Frequency-Hopped Multi-User Chirp Modulation (FH/M-CM) for Multipath Fading Channels
Said E. El-Khamy, Shawk E. Shaaban and Essam A. Thabet (Alex. Univ.).

C7 On The Spectral Efficiency of Different Coherent Techniques for Frequency Comb Multiple Access Systems
Mahmoud Ahmed Attia Ali (Menoufia Univ.).
C8 Efficient Evaluation of the Error Probabilities of CDMA Communication in Mobile Satellite Channel

C9 Reed-Solomon Codes and their Performance for FCMA Systems in Fading Satellite Channel
Mahmoud A. A. Ali, Atef Abou El-Azm and Mohamed F. Marie (Menoufia Univ.).

C10 A New Channel Assignment Algorithm for Dual-Mode Cellular Systems
Hazem Tawfik (Cairo Univ.).

C11 Enhancing of Available Bit Rate Traffic Management Schemes in ATM Networks
Hedia A. Amer (N. T. I.).

C12 Performance of the Buffered and Unbuffered Leaky Bucket Policing Mechanism and Used Feedback Control Loop in ATM Networks
Mahmoud A. Mousa (Ain Shams Univ.), Bahnasy M. Nossier (N. T. I.) and Salwa El-Ramly (Ain Shams Univ.).

C13 Novel Design of Priority Arbiter
Hussein T. Bahbouh, Ahmed H. Khalil and Aly E. Salama (Cairo Univ.).

C14 Exact Reliability Evaluation of Mesh-Connected Processors
Hossam M. A. Fahmy and Abubakr A. El-Hefnawy (Ain Shams Univ.).

C15 A Powerful Simulation Technique Suitable for Performance Studies of Various CSMA/CD LANs
Sayed Abd El-Hadi (Al-Azhar Univ.), Salwa El-Ramly and Ibrahim M. El-Emary (Ain Shams Univ.).

C16 An Efficient Image Compression Technique Using Variable Quadtree Resolution and Neural Networks
A-M. A. Wahdan, A. Z. Badr and Tamer Mostafa (Ain Shams Univ.).

C17 Adaptive Integrated Thermal Imaging System
Kamel M. Hassan (High. Tech. Inst. 10th of Ramadan), I. A. Elfallal and A. M. Mokhtar (M.T.C.).

C18 End Points Detection for Noisy Speech Using a Wavelet Based Algorithm
Nemat S. Abdel Kader and Amr M. Refat (Cairo Univ.).

C19 Infrared Image Compression Using Subband Coding in the Wavelet Domain
A. S. Ragab (M. T. C.), Abdalla S. A. Mohamed (Cairo Univ.) and M. S. Hamid (M. T. C.)

C20 Design of Two Channel IIR QMF Filters with Smooth Wavelet Functions
A. I. Saleh, M. F. Fahmy, G. A. Raheem (Assiut Univ.) and G. F. Fahmy (South Valley Univ.).
C21 Noise Immune Speech Recognition System
Mohmoud Gadallah, Elsayed Soleit and Ashraf Mahran (M. T. C).

C22 Performance Analysis of QPSK and 16-ary PSK Systems in a Land Mobile Regenerative Satellite Link
Salah El-Agooz, Gamal Mabrouk and Eweda Eweda (M. T. C).

C23 New Channel Assignment Algorithm for Fixed Wireless Communication Systems with Power Control
Hazem Tawfik (Cairo Univ.).

C24 The Impacts of Synchronized and Non-Synchronized Reception on Broadcast in Multihope Radio Networks
Kuang-Hung Pan (Nat. Taiwan Univ.), Hsiao-Kuang Wu (Nat. Central Univ.), Rung-Ji Shang and Feipei Lai (Nat. Taiwan Univ.).

C25 A Generic Processing Structure Decomposing the Beamforming Process of 2-D & 3-D Arrays of Sensors into Sub-Sets of Coherent Process
A. Tawfik (Ain Shams Univ.).

C26 Synthesis and Physical Design of DLX RISC Processor

C27 Design of a VLSI Neural Network Arrhythmia Classifier

C28 Human Face Recognition Using Neural Networks
Hazem M. El-Bakry and Mohy A. Abo Elsoud (Mansoura Univ.).

C29 Aircraft Recognition System Using Eigenvector Technique
A. A. Somaie (M. T. C), A. Badr (Ain Shams Univ.) and T. Salah (M. T. C).

C30 Roundoff Error Analysis of the Tracking Performance of the Block LMS Algorithm
Eweda Eweda (M. T. C), Waled M. Younis and Sabwa H. El-Ramy (Ain Shams Univ.).

C31 A Multi-Digit Incremental Coding for Low Bit Rate Transmission
Mohamed E. M. Nasr and Salah A. Khamees (Menoufia Univ.).

C32 Statistical Characterization of Variable Bit Rate MPEG-1 Encoded Video Streams
Sharaf Eldin El-Nahas, El-Sayed Youssef, Mohamed Moussa and Ibrahim Ahmed (Arab Academy for Sc. & Tech.).

C33 Speech Based Automatic Lie Detection
Mahmoud E. Gadallah, Matar A. Matar (M. T. C), and Ayman F. Algezawi (Nat. Defense Center).
C34 Low Bit Rate Line Spectrum Pair (LSP) Quantizer with Application to Speech Coding
Rand El-Kouatly and Salwa El-Ramly (Ain Shams Univ.).

C35 Error Detection and Optimum Decoding for Line Codes in Digital Transmission Systems
Atef Abou-El-Azm and Hala F. Abd El-Daim (Menoufia Univ.).

C36 Different Lattice Structure Filter to Estimate Single Sinusoidal Signal Frequency
Nabil A. Amin (Cairo Univ.).

C37 Signal Separation Using Second and High Order Statistics
M. F. Fahmy, G. M. A. El-Raheem and A. A. El-Sallam (Assiut Univ.).

C38 System Identification Using Higher Order Statistics
M. F. Fahmy, G. M. A. El-Raheem and A. A. El-Sallam (Assiut Univ.).

C39 A Novel Method for the Design of Maximally Decimated Pairwise FIR Filter Banks
M. F. Fahmy, G. M. A. El-Raheem and H. M. Z. Badr (Assiut Univ.).

C40 Design of 2-D FIR Digital Filters with Complex Coefficients Using a Least-Squares Approach
Esam Abdel-Raheem (Ain Shams Univ.).

C41 Neural Based Signature Analysis with Application to Bankature
Mazhar B. Tayel, A. El-Bary and M. Massoud (Alex. Univ.).

C42 Simulation of Transceiver for Multi-Amplitude Continuous Phase Modulation
El-Sayed A. Youssef, Sherif H. Nour-El Din, Mohamed E. Khedr and Akram A. Salman (Arab Academy for Sc. & Tech.).

C43 Random Neural Network Filter for Land Mine Detection
Hossam Abdelbaki, Erol Gelenbe (Central Florida Univ., USA), Taskin Kocak (Mitsubishi Semiconductor, USA) and Said E. El-Khamy (Alex. Univ.).

C44 A Dynamic Model for Neural Networks with Applications to Nonlinear Systems
T. E. Dabbous and K. A. Shafie (Higher Tech. Inst. 10th of Ramadan).

Commission D : Electronics and Photonics

D1 Modeling of Magneto-Optic Eddy Current Inspection of Hidden Flaws in Aircraft Skin
Ibrahim Elshafiey (Cairo Univ.).

D2 Accurate Modeling of Energy-Dependent Impact Ionization Rate for Hydrodynamic Simulators of Semiconductor Devices
Muhammad H. El-Saba (Ain Shams Univ.).

D3 CAD Optimization of Hetero-FET Structures for Efficient Operation at Millimeter-Wave Frequencies
Ali Abou-Elnour (Ain Shams Univ.).
D4 DIBL Coefficient in Short-Channel NMOS Transistors
H. El Ghitani (Ain Shams Univ.).

D5 Drain Current Charge Pumping: A New Technique for Interface Trap Characterization in VLSI MOS Transistors
Hisham Haddara (Ain Shams Univ.).

D6 Design and Simulation of a Wideband CMOS Transconductance Amplifier
M. Abdelfattah Elazab (Higher Tech. Inst. 10th of Ramadan).

D7 Photonic Switch Using Surface-Emitting Laser Diode and APD
Magdy M. Ibrahim (Ain Shams Univ.).

D8 On the Separation of Air Flow During Phonation
M. Hesham (Cairo Univ.).

D9 PC-1D Analysis of Anomalous Current-Voltage Characteristics of Silicon Solar Cells
Roshdy A. AbdelRassoul (King Saud Univ.).

D10 Optical Constants of Lead Sulfide in the 3-11 Microns Window

D11 Effects of Metal Properties on MIS/IL Silicon Solar Cells

Commission E: Electromagnetic Noise and Interference

E1 Wave Excitation by Reb in a Waveguide Filled with Warm, Magnetized Plasma
Sh. M. Khalil, Kh. H. El-Shorbagy (Atomic Energy Auth.) and E. N. El-Siragy (Tanta Univ.).

E2 Adaptive Interference Canceller with Minimized Number of Sensors
E. Soleit and K. El-Barbary (M.T.C).

Commission F: Wave Propagation and Remote Sensing

F1 Study of Tropospheric Surface Refractivity in Lebanon
S. Abou Chahine, H. N. Kheirallah and M. Ayoub (Beirut Arab Univ.).

Commission G: Ionospheric Radio and Propagation

G1 Spatial Correlation Function of the Sky Wave for Use in Space Diversity Reception
Atef M. Ghuniem (Suez Canal Univ.) and Nasser K. Osman (M.T.C.).
Commission H : Waves in Plasma

H1 The Dose Rate Meter and a Personal Pocket Dosimeter Realization in a Single Chip
Imbaby I. Mahmoud (Atomic Energy Auth.).

H2 Natural Radionuclides in Soil and Shore Sediments on Alexandria Mediterranean Sea
Coast of Egypt
R. H. Higgy (Atomic Energy Auth.).

H3 The Optimum Conditions of Radio Sounding of Ionosphere for Detecting and Monitoring
of Explosions
Ya. V. Drobzheva (Academy of Sciences, Kazakstan).

H4 Electron Extraction from the Electrostatically Confined Discharge Source
O. A. Moustafa (Atomic Energy Auth.).

H5 Plasma Torch Device for Micro-Machining Applications
O. A. Moustafa (Atomic Energy Auth.).

H6 Beam Profile of a Parallel Plane Electrodes Focusing System
F. W. Abdel Salam, O. A. Moustafa and H. El-Khabeary (Atomic Energy Auth.).

H7 Study of Radon Behavior Using Inverted Can Method
M. Ra'fat A. Huwait and Mohamed I. Hussein (Atomic Energy Auth.).

H8 An Assessment of Radioactivity of Selected Industrial Wastes
M. Ra'fat A. Huwait (Atomic Energy Auth.), Aly A. Aly Abdo, Muhammed H. Hassan
(Alex. Univ.) and S. A. El-Mongy (Atomic Energy Auth.).

H9 Software Testing as Applied to Computer Controlled Nuclear Reactor
M. Kandil, F. Mohamed, A. Omar (Atomic Energy Auth.) and M. Sheriah (Ain
Shams Univ.).

H10 Determination of Pu-239 for Nuclear Material Safeguards Verification Purposes
S. A. El-Mongy and W. A. El-Gamal (Atomic Energy Auth.).

H11 Development of Radio Frequency Ion Sources and Their Applications
M. E. Abdelaziz and S. G. Zakhary (Atomic Energy Auth.).

H12 Measurement of Low Enriched Uranium Fuel Pellets
I. Badawy and W. A. El-Gamal (Atomic Energy Auth.).

H13 Applications of Electret and Radon-Box in the Estimation of Radon Concentration
Mohamed I. Hussein and M. Ra'fat A. Huwait (Atomic Energy Auth.).
Commission K: Electromagnetics in Biology and Medicine

K1  Optimization of X-Ray Parameters in Radiography Nondestructive Evaluation
    Ibrahim Elshafiey (Cairo Univ.) and Joseph N. Gray (Iowa State Univ., USA).

K2  Effect of Cellular Telephone Radiation on the Human Head Using Plane Waves at 900 MHz
    Hasan Elkamchouchi (Alex. Univ.) and Ali Esmail Amer (Alex. Pertoleum Co.).

POSTER PAPERS

STP1  FeedHorn For Television Receiver Only Satellite
      Ibrahim A. Salem (Supervisor, M. T. C.), Ahmed Galal Nooh, Ahmed Ramy Mahmoud, Osama Hussein Tarraf and Radwa Mohamed Afify (Ain Shams Univ.).

STP2  Design and Optimization of Cellular GSM by Using an Efficient and Easy-to-Use Computer Program
      Ayman Hassan and Ali Abou-Elnour (Ain Shams Univ.).

STP3  Implementation of Integrated CMOS OP AMP for Sigma-Delta Converters
      Ahmed Noman (Ain Shams Univ.).

STP4  Layout Design of a 900 MHz CMOS Downconversion Mixer
      Ahmed A. Youssef (Ain Shams Univ.).

STP5  Design of LPF Using Microstrip Lines
      Nabil A. El-Deeb (Modern Academy) and Mohamed R. El-Barkouky (Ain Shams Univ.).

STP6  Design and Computer Simulation of Convolutional Encoder and Viterbi Decoder
      M. Aboul-Dahab (Supervisor), M. S. M. El-Mahallawy, M. M. Megahed and Sh. Khiray (Arab Academy for Sc. & Tech.).