10th Mediterranean Microwave Symposium
25-27 August 2010
www.mms.ncc.metu.edu.tr
10th Mediterranean Microwave Symposium
MMS'2010
25-27 August 2010
Middle East Technical University - Northern Cyprus Campus
Guzelyurt, Northern Cyprus
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Editors
Tayfun Nesimoglu
Özlem Özugüm
Binboga Siddik Yarman
Levent Sevgi
Cemal Kaplan
Kerem Ok
Welcome Message from URSI National Committee of Turkey

International Union of Radio Science (URSI) is a non-profit, non-governmental organization to bring together radio scientists studying all aspects of electromagnetic waves and fields.

The mission of URSI can be summarized as "to stimulate and coordinate studies, research, applications, scientific exchange and communication in the field of radio science. In this respect, it encourages and promotes international activity in radio science and its applications for the benefit of humanity. Also, it represents radio science to the general public, and to private and public organizations."

Therefore, conferences are an important dimension of URSI activities, and we are very pleased to organize 10th MMS in the beautiful Mediterranean Island of North Cyprus in cooperation with Prof. Essaaidi of Abdussalam Essaaidi University of Morocco. Prof. Essaaidi is the founder and General Chair of all MMS conference series.

We are very thankful to the METU NCC Administration for opening up all the facilities for the conference. We are also very thankful for the people who took part in the local organization and technical committees. We are very well aware of the time and effort that goes into a successful conference organization.

We also thank all sponsors for their help.

We wish all participants a fruitful conference and a successful stay.

URSI National Committee of Turkey
Welcome to the Mediterranean Microwave Symposium 2010

Dear Colleagues,

On behalf of the Organizing Committee, it gives me a great pleasure to welcome you to the Mediterranean Microwave Symposium (MMS) 2010. It is our privilege to host this year’s event at Middle East Technical University Northern Cyprus Campus, where the sun merges with deep blue water of Mediterranean.

Thanks to Prof. Essaïdi who initiated MMS. This year, that is, at 2010, we are celebrating 10th anniversary of the Symposium. Isn’t it lovely? It is historical…

Opening session of the symposium is devoted to the Memory of H. J. Carlin of Cornell University who passed away on February 9, 2009. H. J. Carlin was one of the great names in the development of modern design tools to construct active and passive microwave circuits known as Real Frequency Techniques. He was also one of the leading names who made the scattering parameters available to microwave engineers. I am delighted to announce that Mrs. Carlin honors the opening session.

Over a decade, MMS has built its own world reputation with warm and friendly atmosphere formed with excellent people from Industry and Academia. As usual, an extraordinary technical program was prepared for the participants, and it is enhanced with keynote lecturers, invited speakers and tutorials.

Beyond our excellent technical program, our Local Committee organized wonderful historical/social programs. Details can be found on the web page http://www.mms.ncc.metu.edu.tr as well as on the flyers distributed by the information desk during the symposium.

The Welcome reception (August 25) will be hosted by President Turgut Tumer of Middle East Technical University, Northern Cyprus Campus. The Gağa Dinner (August 26) and the student paper award ceremony will be held at Dome Hotel of Girne, the colorful city of Northern Cyprus by the sea side. On the same evening, we will have a nice cultural program performed by the local artist of the island.

MMS 2010 would not be possible with the immense work of Technical and Local Organizing Committees and the financial support of AVEA, the Gold Sponsor, SAVRONIK, the silver sponsor, and AKTIF NESER Ltd.

Special thanks are extended to keynote, tutorial and invited speakers, and paper contributors who formed outstanding technical content of the Symposium.

I hope you enjoy MMS 2010 and related events during your stay in North Cyprus.

Prof. Dr. Binebogâ Siddik Yarman
Co-Chair of MMS 2010
Dear Guests and Authors,

Middle East Technical University-Northern Cyprus Campus (METU-NCC) in the beautiful Mediterranean island of Cyprus is proud to host the 10th edition of the prestigious Mediterranean Microwave Symposium (MMS-2010). First of all, we would like to thank Turkish National Committee of Union Radio Scientifique Internationale (URSI) for granting us the opportunity to host MMS-2010 in conjunction with the 5th National Congress of URSI.

We would like to thank to our Campus President Prof. Turgut Tumer and General Secretary Dr. Erdal Onurhan for their continuous help and support. We also would like extend our thanks to the General Chair of MMS-2010, Prof. Mohamed Essaaidi, Chair Prof. Hamit Serbest, Co-Chair Prof. Siddik Yarman, Technical Program Committee (TPC) Chair Prof. Levent Sevgi, Honorary Chair Prof. Erol Kocaoglan, TPC, International Steering and Organizing Committee Members, without their contributions it would have been impossible to accomplish the organization of MMS-2010.

We have authors and guests from all continents all over the world and more than 110 technical papers. It is an honor for us to have the support of the following world famous invited and keynote speakers:

- Prof. Bhaskar Gupta, Jadavpur University, India.
- Prof. Duran Leblebici, Technical University of Istanbul, Turkey.
- Prof. Fadhel Ghannouchi, University of Calgary, Canada.
- Prof. Franco Maloberti, University of Pavia, Italy.
- Prof. Levent Sevgi, Doğuş University, Turkey.
- Prof. Pier Paolo Civalleri, Politecnico di Torino, Italy.
- Prof. Raj Mittra, EMC Lab, Penn State University, USA
- Prof. Siddik Yarman, Istanbul University, Turkey.

URSI, IEEE-MTT, IEEE-ED and IEEE-AP Societies are technical co-sponsors of MMS-2010. The accepted IEEE-Xplore compliant papers that are presented in MMS-2010 will be published in IEEE Digital Library and Conference Proceedings. The support of The European Microwave Association (EuMA) in sponsoring the Awards for students’ best papers and the support of IEEE-Turkey in supporting IEEE student members have given us strength to facilitate the attendance of our student authors.

Last but not least, thank you all for being here, welcome, enjoy the conference and our beautiful Mediterranean Island of Cyprus. We hope you will have a wonderful and fruitful three days. We are looking forward to seeing you at all the meetings and activities. We assure you that MMS-2010 will be an excellent scientific event. If you have any requests during the conference or after please do not hesitate informing us, we remain at your disposal.

Best wishes,

Dr. Tayfun Nesimoglu
Dr. Ozlem Ozgun

(On behalf of the organizing committee)
Social Events of MMS 2010 and V URSI-Turkey Symposium 2010

24 August 2010

10.00-17.00 Historical Tour of Nicosia: For
   i. Selimiye Mosque
   ii. Lunch at Buyuk Han
   iii. Bandabulya (Grandbazaar)
   iv. Arasta Bazaar

19.00-23.00 Social Gathering
   19.00-20.30 Dinner at Cafeteria
   20.30-21.00 Campus tour (starts from the Cafeteria)
   21.00-23.00 Happy hour and Evening drinks at Open Theater
       Slide-show during the event
       Music on Upright Piano by who can play

25 August 2010

19.00-23.00 Welcome Reception of the President of METU by the Swimming Pool

26 August 2010

19.00-23.00 Gala Dinner at Dome Hotel-Girne (URSI and MMS 2010)
   • Best Paper Award sponsored by European Microwave Association (EuMA)
   • Thanks to Sponsors
   • Thanks to Distinguished/Invited Speakers
   • Social Program for Dinner
     i. Live Folk Music
     ii. Cyprus Folk Dance group
     iii. Entertainment Music for Dance

27 August 2010

14.00 - 19.00
   i. Historical Sight Seeing tour
   ii. Half Day Beach Party

(For more details please contact with information desk of ASTERYA at the Conference Center)
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[Logos of various sponsors]

METU-NCC
# MMS-2010 Program

## Program at a glance

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## Tuesday, August 24, 2010, Evening, 19H00-23H00, Social Gathering at Open Theatre

**Wednesday, August 25, 2010 (Day 1)**

| Time               | Event                                                                 |
|--------------------|                                                                      |
| 08H30-09H00        | Opening Ceremony (Culture and Convention Centre, Main Hall)         |
| Chair: Ozlem Ozgun, Middle East Technical University, Northern Cyprus Campus. |
| Speakers: Turgut Tumer (Rector of METU-NCC), Mohammed Essaaidi (General Chair of MMS), Hamit Serbest (General Chair of URSI Turkey), Tayfun Nesimoglu (Local Chair of MMS) presenting the general activities of the Symposiums. |
| 09H00-10H00        | **Keynote Talks (Main Hall)**                                       |
| Chair: Siddik Yarman, Istanbul University. |  |
| - “Prof. H.J. Carlin as a researcher, as an educator, as a father and as a philosopher”, Prof. Dr. Pier Paolo Civalleri, Politecnico di Torino, Torino, Italy. |
| - “Real Frequency Techniques to design Ultra Wideband Circuits”, Prof. Dr. Siddik Yarman, Istanbul University, Istanbul, Turkey. |
| 10H00-10H30        | **Coffee Break**                                                     |
| 10H30 – 12H30      | **Technical Sessions**                                               |

**Session 1: Propagation, Scattering and Diffraction (Seminar Room 6)**

Chair: Gokhan Apaydin, Zirve University.

1. Path Loss Model Tuning at GSM 900 for a Single Cell in Nablus City, Allam Mousa.
2. Propagation of Microwaves in Periodic Layered Media, Abdurrahman Öztürk, Rauf Süleymanlı and Bekir Aktas.


Session 2 : Microwave and Millimeter-Wave Circuits – I (Seminar Room 7)
Chair: Fadhel Ghannouchi, University of Calgary.

3. Comparing Miniaturization Techniques for Microstrip 180° Hybrid Ring Junctions, Dimitra Psychogiou and Jan Hesselbarth.
5. Wideband Phase Shifter Design using Lange Coupler and Radial Stubs, Gokhan Boyacioglu and Simsek Demir.

Session 3: Antenna Theory and Measurement – I (Hall 1)
Chair: Lale Alatan, Middle East Technical University.

5. Broadband Antenna for GSM, UMTS and LTE Wi- Max Applications, Mehmet Abbak and Ibrahim Akduman.

Session 4: Antenna Theory and Measurement – II (Seminar Room 8)
Chair: Ozlem Aydin Civi, Middle East Technical University.

4. Study on Circular Planar Antenna, Harish Kumar, Garima Chandel and Madhur deo Upadhayay.
5. Analysis of the Relation between Printed Strip Monopole and Dielectric Coated Thin Cylindrical Monopole, Volkan Akan and Erdem Yazgan.

12H30-14H00 Lunch Break

14H00-15H00 Tutorial I (Main Hall)
Chair: Franco Maloberti, University of Pavia.
- “SDR Based Power amplifiers /Transmitters for Advanced Wireless and Satellite Communications”, Fadhel Ghannouchi, Department of Electrical and Computer Engineering Schulich School of Engineering, University of Calgary, Canada.

15H00-15H30 Coffee Break

15H30 – 17H30 Technical Sessions

Invited Session 1: Software Defined Radio Enabling Technologies (Hall 1)
Chair: T. Nesimoglu, Middle East Technical University, Northern Cyprus Campus.

3. 1-bit RF-MEMS-Reconfigurable Elementary Cell for Very Large Reflectarray, Simone Montori, Luca Marcaccioli, Roberto Vincenti Gatti and Roberto Sorrentino.
4. A Tunable X-Band SiGe HBT Single Stage Cascade LNA, Mustafa Doğan and İbrahim Tekin
5. Synthesis Techniques for some Tunable Notch Filter Topologies, Sacit Oruc, Bulent Alicioglu and Nevzat Yıldırım.
6. Tunable Compact Filters Based on Stub-Loaded Parallel-coupled Resonators, F. Burdin, E. Pistono, and P. Ferrari.
7. 35 GHz Phased Array Antenna using DMTL Phase Shifters, Caner Guclu, Cagri Cetintepe, Ozlem Aydin Civi, Simsek Demir and Tayfun Akin.

**Session 5: Antenna Theory and Measurement – III (Seminar Room 6)**
*Chair: Gulbin Dural, Middle East Technical University.*

1. A Low Wind Load Lightweight Foldable/Deployable Base Station Antenna for Mobile TV, CDMA and GSM, Mohamed Sanad and Noha Hassan.
3. Improvement of Rectangular Microstrip Patch Antenna Performances using Rectangular Slot in Ground Plane, Mouloud Challal, Arab Azrar and Mokrane Dehmas.
6. Implementation and Field Test of a Broadband ESPAR Antenna, Bashir Shami and Hassan Aboulnour.

**Session 6: Microwave and Millimeter-Wave Circuits – II (Seminar Room 7)**
*Chair: Osman Palamutcuogullari, Istanbul Technical University.*


**Session 7: Antenna Theory and Measurement – IV (Seminar Room 8)**
*Chair: Erdem Yazgan. Hacettepe University.*

2. 3x3 Microstrip Beam Forming Network for Multibeam Triangular Array, Aitor Novo Garcia and María Vera Isasa.
5. An Internal EBG Antenna for Indoor Reception of UHF Terrestrial Digital TV Broadcasting, Mohamed Sanad and Noha Hassan.

19H30-22H00 Welcome Cocktail (by Swimming Pool)

**Thursday, August 26, 2010 (Day 2)**

09H00-10H00 Tutorial II (Main Hall)
*Chair: Mustafa Kuzuoglu, Middle East Technical University.*
- “Some Non-traditional Approaches to Computational Electromagnetics for Solving a Class of Real-world Antenna and Scattering Problems”, Raj Mittra of EMC Lab, Penn State University, USA
10H00-10H30 Coffee Break

10H30 – 12H30 Technical Sessions and Workshop

Invited Session 2: Inverse Scattering and Microwave Imaging (Hall 1)
Chair: Salvatore Caorsi, University of Pavia, Italy

1. An Automatic Feature Extraction Technique for GPR Data Processing in Electromagnetic Inverse Scattering, Salvatore Caorsi and Mattia Stasolla.
3. The use of Indirect Holographic Techniques for Microwave Imaging, David Smith, Michael Elsdon, Michael Fernando and Stephen Foti.
4. Target Recognition by Self-Organizing Map Type Unsupervised Clustering using Electromagnetic Scattered Signals in Resonance, Gonul Sayan, Taylan Katılımsız and Eren Sayan.

Session 8: Microwave and Millimeter-Wave Circuits – III (Seminar Room 6)
Chair: Simsek Demir, Middle East Technical University.

3. Miniaturized Lowpass/Bandpass Filter using Multilayer Technique with Mixed U’s and Square Head DGS, Mohamed Alishkawawy, Omar Luxor and Fatma Alheffnawi.
4. Dual-band Microstrip Notch Filters using Slotted Square Patch Resonators, Homayoon Oraizi and Mehdi Hamidkhani.
5. A Narrow Bandwidth Microstrip Bandpass Filter Suitable for System-on-Package Integration, Ahmet Cagri Ulusoy, Gang Liu, Till Feger, Andreas Trasser and Hermann Schumacher.
6. A Novel Approach for Reduction of In-band Intermodulation Products Caused by Adjacent Channel Signals, İlteris Demirkiran, Donald D. Weiner and Andrew Drozd.

Session 9: Microwave and Millimeter-Wave Circuits – IV (Seminar Room 7)
Chair: Narendra Kumar, Motorola.

1. Effect of EMI between Wireless Interconnects and Metal Interconnects on CMOS Digital Circuits, Ankit More and Barış Taskın.
2. Compact LHM-based Band-Stop Filter, Merih Palandöken and Heino Henke.
3. In Fiber Resonance Breaking Mechanism, Osman Akin and M. Salih Dinleyici.

Workshop: Aktif Neser, Workshop on CST (Seminar Room 4)

12H30-14H00 Lunch Break

14H00-14H30 Tutorial III (Main Hall)
Chair: Siddik Yarman, Istanbul University.
- “Historical Perspective on RF Electronics; Evolving Demands and Technologies”, Duran Leblebici, Technical University of Istanbul, Turkey.

14H30-15H00 Tutorial IV (Main Hall)
Chair: Siddik Yarman, Istanbul University.
- “Development of Wearable and Implantable Antennas in the Last Decade: A Review”, Bhaskar Gupta, Jadavpur University, Kolkata, India.

15H00-15H30 Coffee Break
15H30 – 17H30 Technical Sessions

Session 10: Microwave and Millimeterwave Devices and Systems (Hall 1)
Chair: Paragash Chacko, Motorola.

3. A Nonlinear Model for Amplifiers with Memory, Ahmet Hayrettin Yuzer and Simsek Demir.
4. OIP3 Estimation Based on DC Power Conditions, Jakub Duchon, Jari Kangas and Olli-Pekka Lunden.

Session 11: Microwave and Millimeter-Wave Circuits – V (Seminar Room 6)
Chair: Gonul Turhan Sayan, Middle East Technical University.

1. Discrete Component Design of Broadband Impedance Transforming Filter for Distributed Power Amplifiers, Narendra Kumar, Prakash Chacko, Rolf Jansen and Siddik Yarman. (Invited Paper)
2. X-Band High Power Ferrite Phase Shifter, Hakkı İlhan Altan, Özlem Aydın Civi and Şimşek Demir.
4. Composition of Non-concentric Triangular Split Ring Resonators and Wire Strip for Dual-Band Negative Index Metamaterials, Cumali Sabah.

Session 12: Computer Aided Design of Microwave Circuits (Seminar Room 7)
Chair: Paul Warr, University of Bristol.

5. Rigorous Solution by Analytical Regularization Method to the Problem of 3D Tm-Phi Wave Diffraction by a Set of Axially Symmetrical Annular PEC Surfaces, Huseyin Yigit, Fatih Dikmen, Olga A. Suvorova and Yury A. Tuchkin.

Session 13: RF and Wireless Technology (Seminar Room 8)
Chair: Bhaskar Gupta, Jadavpur University.

3. A Simplified Method for Computation of Scattered Fields by the Lamp Posts along a Boulevard used for Wireless Communications in 2-GHz Band, Hamed Sadeghi and Forouhar Farzaneh.

18H30-23H00 Conference Banquet
Friday, August 27, 2010 (Day 3)

09H00-09H30 Tutorial V (Main Hall)
Chair: Birsen Saka, Hacettepe University.
- “Modeling and Simulation in Electromagnetic Engineering: Validation, Verification and Calibration”, Levent Sevgi, Doğuş University, Istanbul, Turkey.

09H30-10H00 Tutorial VI (Main Hall)
Chair: Birsen Saka, Hacettepe University.
- “Technology Scaling and Analog Design Modern and Future Ultra-Deep-Submicron Technologies”, Franco Maloberti, University of Pavia, Italy.

10H00-10H30 Coffee Break

10H30 – 12H30 Technical Sessions

**Session 14: Electromagnetic Properties of Materials/Tissues (Seminar Room 6)**
Chair: Mohammed Essaaidi, Abdelmalek, Essaadi University.

1. Microwave Irradiation as a Rapid Alternative for Soil Disinfestation and Measurement of Soil Microorganisms, Appasaheb Jambhale, Ajit Barbadekar and Balaji Baradabekar.
2. Computation of the Temperature-Rise in the Human Head due to Different Mobile Phone Models, Salah Al-Mously.
5. Foetal ECG Extraction using Broadband Signal Subspace Decomposition, Soydan Redif and Umut Fahrigolu.

**Session 15: RF and Wireless Applications (Seminar Room 7)**
Chair: Ali Kilinc, Okan University.

2. Utilizing ISAR Imagery to Analyze the Diffraction Effects from Leading and Trailing Edges of a Target, Ugur Saynak, Alper Colak, Deniz Bolukbas, Ismail Tayyar and Caner Ozdemir.

**Session 16: Electromagnetic Applications (Seminar Room 8)**
Chair: Raj Mittra, Penn State University.


**SESSION 17: ANTENNA THEORY AND MEASUREMENT V (HALL 1)**
*Chair: Homayoon Oraizi, Iran University of Science and Technology.*

1. **ADJUSTMENT OF RESONANT FREQUENCY OF RECTANGULAR PATCH ANTENNAS BY PLACING METALLIC WALLS OR VIAS ADJACENT TO THEIR EDGES**, Homayoon Oraizi and Ebrahim Forati.
2. **MICROSTRIP RING ANTENNA ON GROOVED SUBSTRATE FOR THE ENHANCEMENT OF RADIATION EFFICIENCY**, Homayoon Oraizi and Bahram Rezaei.
3. **CIRCULAR MULTI-DIRECTIONAL PATCH ANTENNA ARRAY WITH SELECTABLE BEAMS USING A NOVEL FEED STRUCTURE AND EQUILATERAL TRIANGULAR PATCHES**, Mustafa Konca and Sener Uysal.
5. **TRIPLE-BAND CIRCULARLY POLARIZED SLOTTED PATCH ANTENNA FOR GPS AND UMTS SYSTEMS**, George Abdel-sayed, Shoukry Ibrahim and Abdelmegid Allam.

**12H30-14H00  ** Lunch Break

**14H00-22H00  ** Social Event (by registration)
KEYNOTE TALKS

Prof. H.J. Carlin as a researcher, as an educator, as a father and as a philosopher

Prof. Dr. Pier Paolo Civalleri of Politecnico di Torino, Torino, Italy

BIOGRAPHY

Pier Paolo Civalleri received the degree of Professor (Libera Docenza) in Network Theory from Ministry of Public Education in 1966. From 1971 to 1975 he was research director at the Inst. Elettrotecnico Nazionale Galileo Ferraris. From 1967 to 1986 he was a professor of applied mathematics and and from 1975 to 1981 the Director of the Institute of Mathematics of the Polytechnic University of Turin. He has been a visiting professor at Cornell University in 1977, 1979, 1982, 1983 and 1986. Since 1989 he is a corresponding member of the Academy of Sc. of Turin.

Professor Civalleri was President of the IEEE North-Italy Section 1979-1980, and 1981-1983 President of the Turin section of the association of Italian electrical engineers (AIE), where he is currently a life member of the Board of Directors. During 1999-2001 he was President of the European Circuit Society (ECS). He is member of the editorial board of several scientific journals, and was recently the Editor of the IEEE Trans. on Circuits and Systems, Part I. In 1999 he was the General Chairman of the European Conference on Circuit Theory and Design (ECCTD).

Professor Civalleri's research interests are presently in the field of cellular neural networks and quantum circuits. He is author of numerous scientific papers. He is Fellow of the IEEE, and was awarded the IEEE Centennial Medal in 1984.

ABSTRACT

Opening session is devoted to Memory of H.J. Carlin of Cornell University who passed away on February 9, 2009.

H.J. Carlin was one of the great names in the development of modern design tools to construct active and passive microwave circuits know as Real Frequency Technique (RFT). He was one of the leading names together with D.C Youla and L.J. Castriota who made scattering parameters available to microwave engineers. He came up with explicit formulas to design step line filters employing commensurate transmission line as unit elements. He also had significant contributions to dispersion problem for generation Soliton waves in fiber optic lines. It should be mentioned that Prof. Civalleri is the co-author of the book titled Wideband Circuit design of CRC, 1997 for which Prof. H.J. Carlin is the principal author.
Real Frequency Techniques to design Ultra Wideband Circuits

Prof. Dr. Siddik Yarman of Istanbul University,
Istanbul, Turkey

BIOGRAPHY
Received his B.Sc. in Electrical Engineering from Technical University of Istanbul (Feb. 1974), M.Sc. degree from Stevens Institute of Technology, NJ, USA (1978), Ph.D. degree from Cornell University, Ithaca, NY, USA (1982). He had been Member of Technical Staff at David Sarnoff Research Center where he was in charge of designing various satellite transponders for various commercial and military agencies in the US such as Air Force, Hughes Aircraft’s, Bell Labs, Comsat, Intelsat, American Satcom of RCA etc. He returned to Turkey in 1984 and served as Assistant, Associate and full Professor at Anatolia University-Eskişehir, Middle East Technical University-Ankara, Technical University of Istanbul, and Istanbul University, Istanbul. He had been the chairperson of Department of Electronics Engineering, Defense Technologies and Director of School of Technical Sciences of Istanbul University over the years 1990-1996. He was the Founding President of Isik University.

He had been a visiting professor at Ruhr University, Bochum (1987-1994), Germany and Tokyo Institute of Technology, Japan (2006-2008). Currently, he is the chairman of Department of Electrical-Electronics Engineering and the Scientific Research Projects Coordinator of Istanbul University. Lately, he also serves as the member of Board of Trustees of Isik University.

Dr. Yarman published more than 300 scientific and technical papers in the field of Electrical/Electronics Engineering, Microwave Engineering, Computer Engineering, Mathematics and Management. He holds four US patents assigned to US Air Force.


He received the Young Turkish Scientist Award in 1986, the Technology Award in 1987 of National Research and Technology Counsel of Turkey. He received the Research Fellowship award of Alexander Von Humboldt Foundation, Bonn, Germany, in 1987. He became the Member of New York Academy of Science in 1994. He was named as the “Man of the year in Science and Technology” in 1998 of Cambridge Biography Center, UK and elevated to IEEE Fellow for his contribution to “Computer Aided design of Broadband Amplifiers”.

ABSTRACT
Prof. Dr. Siddik Yarman, who was a former Ph.D Student of HJ Carlin at Cornell University (1981), will cover the Real Frequency Techniques to design broadband matching networks as well as microwave amplifiers giving emphasis on current state of the art problems. In his talk, Prof. Yarman will summarize his new book titled Design of Ultra Wideband Power Transfer Networks via Real Frequency Techniques by John Wiley April 2010. Several real life solutions such as an ultra wideband filter from 100 MHz to 2.1 GHz with discrete components, ultra wideband microwave amplifier chip from 10 GHz to 22 GHz, A broadband matching network for a piezoelectric transducer T1350, A broadband antenna matching network for an HF monopole antenna, will be presented. His book can be reached at http://eu.wiley.com/WileyCDA/WileyTitle/productCd-0470319895.html
The next wave in the information revolution will consist of bringing intelligence to the information and communication technology (ICT) sector, allowing seamless and intelligent networking and communication between different users using different services and operators. This will lead to the convergence of communication technologies, aiming at the development and deployment of cooperative and ubiquitous networks that involve existing and future wireless and satellite communications systems.

A critical element in enabling the convergence of different communication systems is the development of software defined radio (SDR) systems that can be used across different frequency bands and for multi-standard applications. This SDR has to be developed to support different frequency carriers and modulations schemes concurrently, in addition to being power- and spectrum-efficient, in order to be able handle high data rates, while being less energy-hungry and more environmentally friendly.

The design of power amplifiers as critical components in any SRD based communication terminal has to be considered closely together with the system architecture, in order to ensure optimal system level performances in terms of linearity and power efficiency. This implies the use of adequate transmitter architectures that convert the analog baseband information to architecture dependent amplifier driving signals, such as sigma-delta, EE&R, Polar and LINC architectures. This talk lays out the principles behind SDR systems and examines the design of software-enabled linear and highly efficient RF/DSP co-designed power amplifiers/transmitters for multi-standard and multi-band applications. Recent advances and practical realizations will also be presented and discussed.
TUTORIAL II
Some Non-traditional Approaches to Computational Electromagnetics for Solving a Class of Real-world Antenna and Scattering Problems

Prof. Dr. Raj Mittra of EMC Lab,
Penn State University,
USA

Raj Mittra is Professor in the Electrical Engineering department of the Pennsylvania State University. He is also the Director of the Electromagnetic Communication Laboratory, which is affiliated with the Communication and Space Sciences Laboratory of the EE Department. Prior to joining Penn State he was a Professor in Electrical and Computer Engineering at the University of Illinois in Urbana Champaign. He is a Life Fellow of the IEEE, a Past-President of AP-S, and he has served as the Editor of the Transactions of the Antennas and Propagation Society. He won the Guggenheim Fellowship Award in 1965, the IEEE Centennial Medal in 1984, the IEEE Millennium medal in 2000, the IEEE/AP-S Distinguished Achievement Award in 2002, the AP-S Chen-To Tai Distinguished Educator Award in 2004 and the IEEE Electromagnetics Award in 2006. He has been a Visiting Professor at Oxford University, Oxford, England and at the Technical University of Denmark, Lyngby, Denmark. He has also served as the North American editor of the journal AEÜ.

His professional interests include the areas of Communication Antenna Design, RF circuits, computational electromagnetics, electromagnetic modeling and simulation of electronic packages, EMC analysis, radar scattering, frequency selective surfaces, microwave and millimeter wave integrated circuits, and satellite antennas.

He has published about 1000 journal and symposium papers and more than 40 books or book chapters on various topics related to electromagnetics, antennas, microwaves and electronic packaging. He also has three patents on communication antennas to his credit. He has supervised over 100 Ph.D. theses, about 90 M.S. theses, and has mentored more than 50 postdocs and Visiting scholars. He has directed, as well as lectured in, numerous short courses on Computational Electromagnetics, Electronic Packaging, Wireless antennas and Metamaterials, both nationally and internationally.
In this talk, Prof. Leblebic will summarize the history of RF-tuned circuits and also introduce state of the art problems in the course of implementation of active and passive RF components employing the COMOS analog VLSI technologies. Prof. Leblebic will show several design examples together with the key issues encountered in real-world design scenarios. His talk will be based on his current book titled Fundamentals of High Frequency CMOS Analog Integrated Circuits by Cambridge University Press 2009.
TUTORIAL IV

Development of Wearable and Implantable Antennas in the Last Decade: A Review

Prof. Dr. Bhaskar Gupta of Jadavpur University, Kolkata, India

Prof Bhaskar Gupta is a Professor in the Department of Electronics & Telecommunication Engineering, Jadavpur University, Kolkata, India where he has been teaching from 1985. He was born in Kolkata in 1960 and obtained his B.E.Tel.E., M.E.Tel.E. and Ph.D. (Engg.) degrees all from Jadavpur University in the years 1982, 1984 and 1996 respectively. He has published more than 100 research articles in refereed journals and conferences, as well as a book and contributed a chapter in B.S. Yarman's book titled Design of Ultra Wideband Antenna Matching Networks by Springer, 2008. He is a Fellow of IETE, Fellow of Institution of Engineers (India) and Life Member of SEMCE (I). His present area of interest is Planar Antennas, Photonic Band Gap Materials and Application of Artificial Intelligence Paradigms in Microwave Engineering and Antennas.
TUTORIAL V

Modeling and Simulation in Electromagnetic Engineering: Validation, Verification and Calibration

Prof. Dr. Levent Sevgi, Doğuş University, Istanbul, Turkey

BIOGRAPHY

Prof. Sevgi was born in Akhisar on 1st January 1958. He received his B.S.E.E., M.S.E.E. and Ph.D. degrees in Electronic Engineering from Istanbul Technical University (ITU) in 1982, 1984, and 1990, respectively. In 1982 he joined ITU as a research assistant. In 1987, while working on his Ph.D. he was awarded a fellowship that allowed him to work with Prof. L. B. Felsen at Weber Research Institute / New York Polytechnic University York for two years. His work at the Polytechnic concerned the propagation phenomena in non-homogeneous open and closed waveguides.

He became assistant, associate and full professor in 1991, 1996 and 2002, respectively. In 1990, he returned to the Electrical and Electronics Engineering Faculty of the ITU. He was with the Center for Defense Studies, ITUV-SAM from 1993 to 1997, for the Long Horizon (UZUN UFUK) Project studies for Turkish Navy. He was with the Scientific Research Group of Raytheon Systems Canada from Sep 1998 till Jun 1999, during the field trials of the Canadian East Coast Integrated Maritime Surveillance System based on surface wave HF Radars. He joined TUBITAK-MRC, Information Technologies Research Institute of the Turkish Scientific Research and Technology Council as the Chair of Electronic Systems Department in Jun 1999 and spent nearly two years. He was also with the Center for Defense Studies, ITUV-SAM for Vessel Traffic System installation for Turkish Straits from 2000 to 2002.

Prof. Sevgi has been with Electronics and Communication Engineering Department of Engineering Faculty since February 2002.

His research study has focused on propagation in complex environments, analytical and numerical methods in electromagnetic, radar systems, EMC/EMI modeling and measurement, surface wave HF radars, FDTD, TLM, SSPE and MoM techniques and their applications, RCS modeling, bio-electromagnetics. He is also interested in novel approaches in engineering education, teaching electromagnetics via virtual tools. He also teaches popular science lectures like Science, Technology and Society.

He is a Fellow member of the IEEE, a member of Turkish Chamber of Electrical Engineers (EMO), an assoc. Editor, of the IEEE Antennas and Propagation Magazine, Testing ourselves Column, member of the IEEE Antennas and Propagation Society Education Committee, a column Writer in the IEEE Region 8 Newsletter Scientific Literacy Column, in the Editorial Boards of ELEKTRIK, Turkish Journal of Electrical Engineering and Computer Sciences, American Journal of Food Technology,

He is the author or co-author of more than 100 journal and 80 international conference papers. He has several books in English and Turkish.

ABSTRACT

Modeling and numerical simulation issues in electromagnetic engineering are discussed. Fundamental concepts like analytical, numerical, and hybrid methods, physics-based modeling, model validation, data verification, and code calibration (VV&C), etc., are reviewed. VV&C examples are presented through canonical tests and comparisons.
TUTORIAL VI
Technology Scaling and Analog Design of Modern and future ultra-deep-submicron technologies

Prof. Dr. Franco Maloberti of University of Pavia, Italy

BIOGRAPHY
Franco Maloberti received the Laurea degree in physics (summa cum laude) from the University of Parma, Parma, Italy, in 1968, and the Doctorate Honoris Causa in electronics from the Instituto Nacional de Astrofísica, Optica y Electronica (Inaoe), Puebla, Mexico, in 1996. He was a Visiting Professor at The Swiss Federal Institute of Technology (ETH-PEL), Zurich, Switzerland and at the EPFL, Lausanne, Switzerland. He was the TI/J.Kilby Chair Professor at the A&M University, Texas and the Distinguished Microelectronic Chair Professor at the University of Texas at Dallas. Presently he is Professor of Microelectronics and Head of the Micro Integrated Systems Group, University of Pavia, Italy. His professional expertise is in the design, analysis, and characterization of integrated circuits and analog digital applications, mainly in the areas of switched-capacitor circuits, data converters, interfaces for telecommunication and sensor systems, and CAD for analog and mixed A/D design. He has written more than 400 published papers on journals or conference proceedings, four books, and holds 30 patents. Dr. Maloberti was the recipient of the XII Pedriali Prize for his technical and scientific contributions to national industrial production, in 1992. He was co-recipient of the 1996 Institute of Electrical Engineers Fleming Premium, the best paper award, ESSCIRC-2007, and the best paper award, IEEJ Analog Workshop-2007. He was the President of the IEEE Sensor Council from 2002 to 2003 and Vice-President, Region 8, of the IEEE CAS Society from 1995 to 1997 and an Associate Editor of IEEE TCAS-II. Presently he is serving as VP-Publications of the IEEE CAS Society. He received the 1999 IEEE CAS Society Meritorious Service Award, the 2000 CAS Society Golden Jubilee Medal, and the 2000 IEEE Millennium Medal. He is an IEEE Fellow. In 2009 he received the title of Honorary Professor of the University of Macau.

ABSTRACT
In this talk, Prof. Maloberti will introduce challenging analog design via technology scaling. It Decrease of supply voltage, gate leakage current increases, diminished intrinsic MOS gain, high 1/f noise are some of the problems. Trend is to focus on interfaces and minimize analog pre-processing but it is required anyway designing op-amps or OTA with acceptable gain, obtaining comparators with good sensitivity and low offset, realizing suitable analog interfaces. After reviewing analog limits, design methods and various tricks for optimizing analog effectiveness are examined and discussed.