

The 23rd Annual Review of Progress in Applied Computational Electromagnetics

**March 19-23, 2007
Verona, Italy**

Symposium General Chair: **Sami Barmada**

Symposium Technical Chair: **Atef Elsherbeni**

Vice Chair: **Antonino Musolino**

Short Course Chair: **Rocco Rizzo**

Administrative Assistants: **Mohamed Al Sharkawy**

and

Matthew Inman

February 7, 2007

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ACES 2007 Short Courses

Title and Presenter **Room**

Monday, March 19, 2007 – Full Day

Conservative Finite Difference Method: A Recipe for Combining the Simplicity of FDM with the Flexibility of FEM

Alireza Baghai-Wadji

Monday, March 19, 2007 – Half Day (AM Session)

The Iterative Multi-Region Technique for Large Scale EM Problems

Atef Elsherbeni

Monday, March 19, 2007 – Half Day (PM Session)

Efficient Modeling of Electrically Large Structures

Branko Kolundzija

Monday, March 19, 2007 – Half Day (PM Session)

Surface Impedance Boundary Conditions

Luca Di Rienzo and Nathan Ida

Monday, March 19, 2007 – Half Day (PM Session)

Modelling Techniques for Small Antennas and Metamaterials

Yang Hao and Raj Mittra

ACES 2007 Invited Plenary Talks

Title and Presenter	Room
Tuesday, March 20, 2007 "Integral Equations in Computational Electromagnetics" Piergiorgio L. E. Uslenghi	Aida
"Overcoming the Multi-Scale Problems in EMI/EMC Analysis" Sergey Yuferev	Aida
Wednesday, March 21, 2007 "The Life of James Clerk Maxwell" James Rautio	Aida
"Multi-Level Modeling for Complex Microwave and High-Speed Design" Wolfgang J. R. Hoefer	Aida
Thursday, March 22, 2007 "Computational Electromagnetics in Biomedical Problems: Challenges and Some Solutions" Maria A. Stuchly	Aida
"Computational Electromagnetics Applied to Portable Antenna Research" Antonio Faraone	Aida

ACES 2007 Sessions Overview

Session Title	Room
Tuesday, March 20, 2007 (Sessions 1-11)	
1- Plenary Session - A	Aida
2- Advanced Computational Techniques in Electromagnetics - 1	Aida
3- EM Applications in Medicine	Rigoletto 1&2 Atto
4- Metamaterial Structures with Application to Guided-Wave Electromagnetics and Antennas	Nabucco 2 Atto
5- Modeling and Applications of Microwave Metamaterial	Nabucco 1 Atto
6- Six Port Technology in Software Radio Wireless Communication Systems	Turandot
7- Numerical Challenges in Modeling Metamaterials	Turandot
8- FEKO Modeling and Analysis	Rigoletto 1&2 Atto
9- Student Paper Competition	Nabucco 1 Atto
10- Electromagnetic Modeling, Inversion and Applications	Nabucco 2 Atto
11- Modeling EM in Maritime Environment	Aida
Wednesday, March 21, 2007 (Sessions 12-22)	
12- Plenary Session - B	Aida
13- Advanced Computational Techniques in Electromagnetics - 2	Rigoletto 1&2 Atto
14- Advances in Electromagnetic Modeling by WIPL-D Software	Aida
15- New Techniques for Computational Electromagnetic Validation	Nabucco 2 Atto
16- Computational RF and Thermal Dosimetry	Turandot
17- Efficient Numerical Solutions of Large Multi-dimensional Inverse Scattering Problems	Nabucco 1 Atto
18- Computational Methods for Nondestructive Evaluation and Materials Characterization	Nabucco 2 Atto
19- CST Modeling and Analysis	Aida
20- Modeling of Biomedical Problems - 1	Rigoletto 1&2 Atto
21- Computer Simulation of Electromagnetic-System Testing	Turandot
22- MEFiSTo Modeling and Analysis	Nabucco 1 Atto

ACES 2007 Sessions Overview

Session Title	Room
Thursday, March 22, 2007 (Sessions 23-34)	
23- Plenary Session - C	Aida
24- Nature-Based Stochastic Optimization Methods	Turandot
25- Modeling of Biomedical Problems - 2	Nabucco 1 Atto
26- MoM and Applications	Rigoletto 1&2 Atto
27- Poster Sessions 1	Poster Hall
28- Poster Sessions 2	Poster Hall
29- Detection and Imaging: Theoretical, Algorithmic, Technology and System Advances	Nabucco 2 Atto
30- SEMCAD X: Recent Modeling Advances for Virtual Prototyping	Aida
31- High Power Microwave	Turandot
32- Macromodeling for EMC and SI Complex Systems	Rigoletto 1&2 Atto
33- Advanced EMC Modeling	Nabucco 1 Atto
34- Advanced Modeling Techniques and The Application of Microwave Devices	Turandot
Friday, March 23, 2007 (Sessions 35-43)	
35- Ill-Posed Electromagnetic Inverse Problems: Theory and Applications	Rigoletto 1&2 Atto
36- Wideband and Multiband Antennas	Turandot
37- Innovation in the Macromodeling of High Speed Interconnects	Nabucco 2 Atto
38- Advances in Conformal Time-Domain Methods: Finite-Volume and Discontinuous Galerkin	Nabucco 1 Atto
39- Analysis and Design of Antennas for Wireless Communications	Aida
40- Applications Based on FDTD	Turandot
41- Computational Electromagnetics for Photonics	Rigoletto 1&2 Atto
42- Imaging, Computation and Inverse Methods in Biomedicine	Nabucco 2 Atto
43- Microwave and Optical Devices, Propagation	Nabucco 1 Atto

ACES Conference 2007

Day	Time		Turandot	Nabucco 1 Atto	Nabucco 2 Atto	Rigoletto 1&2 Atto	Poster Hall
Monday, March 19	8:00 - 5:00	Aida					
	8:00 - 12:00	FD Method - Alireza - SC					
	1:00 - 5:00		IMR - Elsherbeni - SC	Large S. - Branko - SC	IBC - Luca & Nathan - SC	Small Ante. - Mittra & Hao - SC	
Tuesday, March 20	8:00 - 8:15	ACES Business Meeting					
		Prof. O. Mohamed					
	8:15 - 8:30	Welcome, Prof. S. Barmada					
	8:30 - 9:30	Prof. Piergiorgio Usleghi					
	9:30 - 10:30	Prof. Sergey Yuferev					
	10:30 - 11:00	Break					
	11:00 - 1:00	Advanced Computational - 1	Six port Technology	Modeling and Appl. of Microwave	Metamaterial Structures - GW	EM Applications in Medicine	
	1:00 - 2:30	Lunch					
	2:30 - 4:30	Advanced Computational - 1	Numerical Challenges in Mod.	Student Paper Competition	Metamaterial Structures - GW	FEKO Modeling and Anal.	
	4:30 - 4:50	Break					
4:50 - 6:30	Modeling EM in Maritime	Numerical Challenges in Mod.	Student Paper Competition	Electromagnetic Modeling, Inv.	FEKO Modeling and Anal.		
Wednesday, March 21	8:30 - 9:30	Prof. James Rautio					
	9:30 - 10:30	Prof. Wolfgang Hoefer					
	10:30 - 11:00	Break					
	11:00 - 1:00	Modeling by WPL-D	Computational RF and Thermal	Multi-dimensional Inverse Scattering	Compu. Electromagnetic Valida.	Advanced Computational - 2	
	1:00 - 2:30	Lunch					
	2:30 - 4:30	CST Modeling and Analysis	Computational RF and Thermal	Multi-dimensional Inverse Scattering	Nondestructive Evaluation	Modeling of Biomedical - 1	
	4:30 - 4:50	Break					
	4:50 - 6:30	CST Modeling and Analysis	Computer simulation - Testing	MEFIS To Modeling and Analysis	Nondestructive Evaluation	Modeling of Biomedical - 1	
Thursday, March 22	8:30 - 9:30	Prof. Maria Stuchly					
	9:30 - 10:30	Prof. Antonio Faraone					
	10:30 - 11:00	Break					
	11:00 - 1:00	SEMCAD X	Nature-Based Stochastic	Modeling of Biomedical - 2	Detection and Imaging	MoM and Applications	Poster Sessions - 1
	1:00 - 2:30	Lunch					
	2:30 - 4:30	SEMCAD X	High Power Microwave	Advanced EMC Modeling	Detection and Imaging	Macromodeling for EMC - SI	Poster Sessions - 2
	4:30 - 4:50	Break					
4:50 - 6:30		Advanced Modeling Techniqu	Advanced EMC Modeling	Detection and Imaging	Macromodeling for EMC - SI		
Friday, March 23	8:30 - 10:30	Wireless Communications	Wideband and Multiband Ant	Advanced in Conformal Time-Domain	Innovation in the Macromodel	ILL-Posed Electromagnetic Inverse	
	10:30 - 11:00	Break					
	11:00 - 1:00	Wireless Communications	Applications Based on FDID	Advanced in Conformal Time-Domain	Innovation in the Macromodel	Comp. Electromagnetics - Photonics	
	1:00 - 2:30	Lunch					
	2:30 - 4:30	Wireless Communications	Applications Based on FDID	Microwave, Optical Devices	Imaging, Computation and Inv.	Comp. Electromagnetics - Photonics	

ACES 2007 Technical Program

The 23rd Annual Review of Progress in Applied Computational Electromagnetics
Verona, Italy
March 19-23, 2007

Monday, March 19

- 8:00-11:00 **Short Course Registration**
- 8:30-5:00 **Short Courses**
- 12:00-5:00 **Conference Registration**
- 5:00-7:00 **ACES Board of Directors Meeting**
- 7:00 PM **Reception**

Tuesday, March 20

- 8:00-5:00 **Conference Registration**
- 8:00-5:00 **Exhibitors**
- Room:** **Aida**
- 8:00-8:15 **ACES Business Meeting**
Osama Mohamed
- 8:15-8:30 **Welcome**
Sami Barmada
- 8:30-10:30 **Plenary Session - A** **Session 1**
- 8:30-9:30 "Integral Equations in Computational Electromagnetics"
Piergiorgio L. E. Uslenghi
- 9:30-10:30 "Overcoming the Multi-Scale Problems in EMI/EMC Analysis"
Sergey Yuferev
- 10:30-11:00 Break
- Room:** **Aida** **Session 2**
- 11:00-4:30 **Advanced Computational Techniques in Electromagnetics - 1**
Session Organizer: Alireza Baghai-Wadji
Session Chairs: Alireza Baghai-Wadji and Joe LoVetri
- 11:00-11:20 "A Dielectric-Scalable FDTD Algorithm for Adaptively Modeling Inhomogeneous Media"
Mohammed F. Hadi
- 11:20-11:40 "One Hybrid Method Application on Anisotropic Strip Lines Determination"
Nebojša B. Raičević and Saša S. Ilić

- 11:40-12:00 "A Hybrid Implicit/Explicit Finite-Difference Scheme for the Numerical Solution of the Vector Parabolic Equation Governing Electromagnetic Field Propagation in Straight and Curved Rectangular Tunnels"
Paolo Bernardi, Diego Caratelli, Renato Cicchetti, and Orlandino Testa
- 12:00-12:20 "Improving the Parallel Efficiency of the SPAI Preconditioner in FEKO"
Johannes J. van Tonder_ and Ulrich Jakobus
- 12:20-12:40 "Genetic Optimization for Optimum 3G Network Planning: an Agent-Based Parallel Implementation"
Beatrice Di Chiara, Alessandra Esposito, Stefano Luceri, and Luciano Tarricone
- 12:40-1:00 "Application of the Energy-Based Stability Condition on the Spatial Wavelet-Transformed FDTD Scheme"
Winfried Bilgic, Ingo Wolff , and Daniel Erni
- 1:00-2:30** Lunch
- 2:30-2:50 "Modeling MC Effects between Antenna Array-Elements in a Microcellular Environments Using FMM"
S. Cookey Ekpo, Armstrong Sunday and Edidiong-Obong Ekpo
- 2:50-3:10 "2D Canonical and Perturbed Quantum Potential-Well Problem: A Universal Function Approach"
Istiaque Ahmed and Alireza Baghai-Wadji
- 3:10-3:30 "Perspective of the Uniaxial Wavelet-Transformed FDTD Scheme"
Winfried Bilgic, Ingo Wolff, and Daniel Erni
- 3:30-3:50 "A Novel Formulation of the Volume Integral Equation for Electromagnetic Scattering"
W. C. Chew and L. E. Sun
- 3:50-4:10 "FMM Based MOR Applied to 2-D Electromagnetic Scattering Problems"
Ozgun Tuncer, Dzianis Lukashevich and Peter Russer
- 4:10-4:30 "On the Calculation of Linearly-Perturbed Harmonic Oscillator"
P. Peidaee and A. R. Baghai-Wadji

Room:

Rigoletto 1&2 Atto

Session 3

11:00-1:00

EM Applications in Medicine

Session Organizers: Erdem Topsakal and Ahmed Kishk

Session Chairs: Erdem Topsakal and Magda El-Shenawee

- 11:00-11:20 "Hyperthermia a Treatment for Cancer: Maturation of its Clinical Application"
Gerard C van Rhooon and J. van der Zee
- 11:20-11:40 "Heating of Deep Seated Tumours using Microwaves Radiation"
Hana Trefn´a and Mikael Persson
- 11:40-12:00 "Small Biocompatible Antennas for In-Body Wireless Data Telemetry"
Erdem Topsakal, Tutku Karacolak, and Jose Pvallalta
- 12:00-12:20 "Interpreting Artificial Neural Network Output for the Microwave Detection of Breast Cancer"
Douglas A. Woten, Magda El-Shenawee, and John Lusth
- 12:20-12:40 "Measurement of the Entrainment of Bioelectric Sources in the Epileptic Brain from Scalp EEG"
U. Aguglia, F. La Foresta, N. Mammone, F.C. Morabito and M. Versaci
- 1:00-2:30** Lunch

Room: **Nabucco 2 Atto** **Session 4**
11:00-4:30 **Metamaterial Structures with Application to Guided-Wave Electromagnetics and Antennas**

Session Organizers: **Alexander Yakovlev and Giampiero Lovat**

Session Chairs: **Alexander Yakovlev and Giampiero Lovat**

- 11:00-11:20 "Physics of Wave Propagation in Miniaturized Metamaterial-based Waveguides: Analytical, Numerical and Experimental Investigation"
Silvio Hrabar, Ivan Paskovic, and Bruno Margitic
- 11:20-11:40 "Cylindrical Metamaterial Sub-Wavelength Antennas Supporting Higher-Order Leaky Modes for Cellular and Satellite Applications"
Andrea Alù, Filiberto Bilotti, Nader Engheta, and Lucio Vegni
- 11:40-12:00 "Split Ring Resonator Slab Modeling for a Metamaterials Loaded Loop Antenna"
Chris Fazi, Shouyuan Shi, Iftekhar Mirza, and Dennis Prather
- 12:00-12:20 "Using Electromagnetic Band Gap (EBG) Superstrate Layer to Enhance the Bandwidth and Gain of a Dual Band Microstrip Patch Antenna"
Farshad Keshmiri, and Majid Tayarani
- 12:20-12:40 "Understanding the Electromagnetic Characteristics of Real Metamaterials via Rigorous Field Simulation"
Raj Mittra
- 1:00-2:30** Lunch
- 2:30-2:50 "Rigorous Analysis of Metasurfaces Composed of Wire Arrays with Linear and Non-Linear Inclusions"
Oleksandr Malyskin, Alexander G. Schuchinsky, and Vincent F. Fusco
- 2:50-3:10 "Loaded Transmission-Line Meshes as Artificial Materials for some Antenna Applications"
P. Ikonen, P. Alitalo, and S. Tretyakov
- 3:10-3:30 "Numerical Modeling of Leaky-Wave Propagation in Grounded Wire-Medium Slabs"
P. Burghignoli, G. Lovat, F. Capolino, D. R. Jackson, and D. R. Wilton

Room: **Nabucco 1 Atto** **Session 5**
11:00-1:00 **Modeling and Applications of Microwave Metamaterial**

Session Organizers: **Yang Hao and Raj Mittra**

Session Chairs: **Raj Mittra and Yang Hao**

- 11:00-11:20 "Experimental Verification of a 5-Order Bandpass E-Plane Filter with EBG Resonators"
George Goussetis and Constantin Constantinides
- 11:20-11:40 "On Effective Material Parameters of Metamaterials"
C.R. Simovski and S.A. Tretyakov
- 11:40-12:00 "Stability and Numerical Dispersion Analysis for A Spatially Dispersive Finite-Difference Time-Domain Method"
Yan Zhao, Pavel Belov, and Yang Hao
- 12:00-12:20 "Finite Element Modeling of Dual-core Photonic Crystal Fiber"
Kaisar R. Khan and Thomas X. Wu
- 12:20-12:40 "Numerical Implementation of the Array Scanning Method (ASM) for 2D Periodic Materials"
Filippo Capolino, David R. Jackson, and Donald R. Wilton
- 12:40-1:00 "Fast Method to Compute an Efficient Basis to Simulate Metamaterials with Macro Basis Functions"

Xavier Radu and Christophe Craeye

1:00-2:30

Lunch

Room:

Turandot

Session 6

11:00-1:00

Six Port Technology in Software Radio Wireless Communication Systems

Session Organizers: R. G. Bosisio, M. Bozzi, and M. R. Soleymani

Session Chairs: R. G. Bosisio and M. Bozzi

11:00-11:20

"Six-Port Direct QPSK Modulator at VHF band"

Xiao Hu, Serioja O. Tatu, and Renato G. Bosisio

11:20-11:40

"Calibration of Six-Port Receivers by Applying Linear Equalization"

Thomas Eireiner, Matthias Wetz, Qingxia Lu, Christian Pietsch, Ivan Periša, and Thomas Müller

11:40-12:00

"Numerical Model of Six-port and its Applications"

Yanyang Zhao, Jean-François Frigon, Ke Wu, and Renato G. Bosisio

12:00-12:20

"A Compact Multi-Layer Analog Front-End of a Six-Port Receiver"

Alexander Koelpin, Sebastian Winter, Robert Weigel

12:20-12:40

"Review of Six-Port Interferometer Technology"

Yansheng Xu, Luca Gerardi, Yanyang Zhao, Maurizio Bozzi, Luca Perregrini, Ke Wu, and Renato G. Bosisio

12:40-1:00

"A Direct and Broadband "n-port" Demodulator for Wireless Communication Systems"

Sara Abou Chakra and Beatriz Amante García

1:00-2:30

Lunch

Room:

Turandot

Session 7

2:30-6:30

Numerical Challenges in Modeling Metamaterials

Session Organizers: F. Bilotti, F. Capolino, C. Craeye, S. Tretyakov, and L. Vegni

Session Chair: C. Craeye

2:30-2:50

"New Homogenization Approach for the Numerical characterization of Periodic Microstructured Metamaterials"

Mário Silveirinha

2:50-3:10

"Efficient MoM Analysis of Metamaterials Involving Dielectric Structures"

Xavier Dardenne, Nicolas Guerin, and Christophe Craeye

3:10-3:30

"Numerical Investigation of Beaming from Simple Sources in Grounded Wire-Medium Slabs"

P. Burghignoli, G. Lovat, F. Capolino, D. R. Jackson, and D. R. Wilton

3:30-3:50

"On the Effects of Numerical Material Parameters and Switching Time in FDTD Modelling of Left-Handed Metamaterials"

Yan Zhao, Pavel Belov, and Yang Hao

3:50-4:10

"Artificial Magnetic Conductors for Wideband Antenna Applications"

Gopinath Gampala and Alexander B. Yakovlev

4:10-4:30

"Investigation of Transmission Properties of Multilayer Metamaterial Structures with MLFMA"

Levent GÄurel, ÄOzgÄur ErgÄul, and Alper ÄUna

4:30-4:50

Break

4:50-5:10

"Numerical Modeling of Metamaterials in Electromagnetics Using the Finite Element Method"

Kezhong Zhao, Seung-Cheol Lee, Vineet Rawat, and Jin-Fa Lee

- 5:10-5:30 "Effective Description and Power Balance of Metamaterials"
Chryssoula A. Kyriazidou, Harry F. Contopanagos, and Nicolaos G. Alexopoulos
- 5:30-5:50 "Some Considerations on the Reliability of Finite Element Simulators for Problems Involving Metamaterials"
Gaia Cevini, Giacomo Oliveri and Mirco Raffetto
- 5:50-6:10 "Exact Modelling of a Finite Sample of Metamaterial"
Ignace Bogaert and Femke Olyslager

Room: **Rigoletto 1&2 Atto**

Session 8

2:30-6:30 FEKO Modeling and Analysis

Session Organizer: C. J. Reddy

Session Chairs: Randy L. Haupt and Ulrich Jakobus

- 2:30-2:50 "The Use of FEKO for the Modeling of Test Set-ups for Radiated Susceptibility"
Flavia Grassi, Giordano Spadacini, Filippo Marliani, and Sergio A. Pignari
- 2:50-3:10 "Estimation of Radiated Power Density from a Large-scale Phased Array Antenna using FEKO"
Masahiro Tanabe and Yasuharu Masuda
- 3:10-3:30 "FEKO Simulation of a Wedge Mounted Four Element Array Antenna"
Steven Weiss, Ozlem Kilic, Robert Dahlstrom and Chad Patterson
- 3:30-3:50 "ICNIRP Compliance Investigation for TETRA Radio System"
Ernst H. Burger, Valpré Kellerman, Marnus J. van Wyk and Frans J. C. Meyer
- 3:50-4:10 "FEKO Simulations and Measurements of Electrical Field Distributions around a Car"
Yoshihide Yamada, Kouichi Tanoshita, Kouji Nakatani and Satoru Horiuchi
- 4:30-4:50** Break
- 4:50-5:10 "Art as Antenna: A Characterization of the Miami Hyatt-Regency Lobby Sculpture Using EMSS-FEKO™"
B. David Moore and P.E.
- 5:10-5:30 "A Holographic Dipole from a Monopole Mounted in a Dual Parabolic Reflector"
Keith Snyder
- 5:30-5:50 "Recent Extensions in FEKO: FEM Excitations, Cable Coupling, and Ideal Receiving Antennas"
Ulrich Jakobus, Marianne Bingle, Johann J. van Tonder, and Frank Illenseer
- 5:50-6:10 "Aircraft Antenna Modeling and Analysis"
David W. Estlick and Christopher Beaupre
- 6:10-6:30 "Interfacing FEKO and MATLAB for Microstrip Antenna Design"
Randy L. Haupt

Room: **Nabucco 1 Atto**

Session 9

2:30-6:30 Student Paper Competition

Session Chairs: Amir Zaghoul and Allen Glisson

- 2:30-2:50 "Design and Modeling of an RFID Reader Antenna Using Full-Wave Time-Domain Numerical Techniques"
Any Traille, Terence Wu, and Manos M. Tentzeris
- 2:50-3:10 "Design and Simulation of a Broadband LNA for a C Band Pulse Altimeter"

Robab Kazemi, Ramezan A. Sadeghzadeh, and Reza Fatemi

- 3:10-3:30 "Space Use Radial Line Slot Antenna with Honeycomb Structure"
Hideki Ueda, Jiro Hirokawa, Makoto Ando, Yukio Kamata, and Osamu Amano
- 3:30-3:50 "Synthesized Antenna Arrays for Future Mobile Networks"
J. Pontes, A. Lambrecht, and W. Wiesbeck
- 3:50-4:10 "A Delta Method Based Technique to Determine Mean Value and Variance of the Response of an Electromagnetic Device with Uncertain Parameters"
Mauro Tucci, Antonino Musolino, and Giancarlo Becherini
- 4:10-4:30 "Practical Implementation of a CPML Absorbing Boundary for GPU Accelerated FDTD Technique"
Matthew J. Inman, Atef Z. Elsherbeni, James G. Maloney, and Bradford N. Baker
- 4:30-4:50** Break
- 4:50-5:10 "Aligning Curves for More Accurate Curve Comparisons"
Robert S. Edwards, Martin P. Robinson, John F. Dawson, Andy C. Marvin, and Stuart J. Porter
- 5:10-5:30 "Efficient Time-domain Sensitivity Analysis Using Coarse Grids"
Yunpeng Song, Natalia K. Nikolova, and Mohamed H. Bakr
- 5:30-5:50 "Application of the NCP Parameter-Choice Method to the General-Form Tikhonov Regularization of 2-D/TM Inverse Scattering Problems"
Puyan Mojabi and Joe LoVetri
- 5:50-6:10 "Parallel High-Order EM-FVTD on an Unstructured Mesh"
Ian Jeffrey, Dmitry K. Firsov, Colin Gilmore, Vladimir Okhmatovski, and Joe LoVetri

Room:

Nabucco 2 Atto

Session 10

4:50-6:30

Electromagnetic Modeling, Inversion and Applications

Session Organizers: Ganquan Xie, Michael Oristaglio, and Jianhua Li

Session Chairs:

- 4:50-5:10 "Estimating Distributed Objects Inside Buildings by Moving Sensors"
Marija M. Nikolic, Arye Nehorai, and Antonije R. Djordjevic
- 5:10-5:30 "Short-pulse Electromagnetic Scattering from Buried Perfectly-conducting Cylinders"
Fabrizio Frezza, Pasquale Martinelli, Lara Pajewski, and Giuseppe Schettini
- 5:30-5:50 "Verification of the CADRCS RCS Tool for NCTR Work"
L. Botha
- 5:50-6:10 "A Two-Step Procedure for Obstacle Characterization under a Rough Surface"
O. Cmielewski, H. Tortel, A. Litman and M. Saillard

Room:

Aida

Session 11

4:50-6:30

Modeling EM in Maritime Environment

Session Organizers: Ozlem Kilic and Jerry Smith

Session Chairs: Ozlem Kilic and Jerry Smith

- 4:50-5:10 "Role of Multiple Scattering in the Radar Observations of Sea Surface at Small Grazing Angles"
Valerian I. Tatarskii and Viatcheslav V. Tatarskii
- 5:10-5:30 "Modeling Electromagnetic Wave Interactions with Sea Spray"

Ozlem Kilic

- 5:30-5:50 "Effect of Shadowing on Propagation over Rough Water"
Jerry R. Smith and Mark S. Mirotznik
- 5:50-6:10 "Novel Hardware Platforms for Shipboard Modeling of Electromagnetic Phenomena"
Dennis W. Prather, James P. Durbano, Eric J. Kelmelis
- 6:10-6:30 "Investigation of Statistical Properties of Range-Resolved, Low-Grazing Sea Clutter using 2-D Direct Numerical Scattering Simulations"
Jakov V. Toporkov and Mark A. Sletten

Wednesday, March 21

8:00-5:00 Conference Registration

8:00-5:00 Exhibitors

Room: Aida

8:30-10:30 Plenary Session - B

Session 12

8:30-9:30 "The Life of James Clerk Maxwell"

James Rautio

9:30-10:30 "Multi-Level Modeling for Complex Microwave and High-Speed Design"

Wolfgang J. R. Hoefer

10:30-11:00 Break

Room: Rigoletto 1&2 Atto

Session 13

11:00-1:00 Advanced Computational Techniques in Electromagnetics - 2

Session Organizer: Alireza Baghai-Wadji

Session Chairs: Alireza Baghai-Wadji and Mohammed Hadi

11:00-11:20 "Phase-Matching the Hybrid M24/S₂₂ FDTD Algorithm"

Mohammed F. Hadi and Rabih K. Dib

11:20-11:40 "Convergence Acceleration Method for the Radiation of Vertical Electric Dipole on Large Sphere"

Ting Fei, Le-Wei Li, and Tat Soon Yeo

11:40-12:00 "Computation Method for Cutoff Frequency and Modal Field of Waveguides of Arbitrary Cross Section"

Nguyen Hoang Hai, Yoshinori Namihira, Kaijage Shubi, S. M. Abdur Razzak, and Feroza Begum

12:00-12:20 "A Super-Phase Coherent 3D High-Order FDTD Algorithm"

Mohammed F. Hadi

12:20-12:40 "On the Determination of the Eigenpairs of 1D Positive Differential Operators with Periodic Boundary Conditions"

A. Rezaee and A. R. Baghai-wadji

12:40-1:00 "Diakoptic Surface Integral Equation Formulation Applied to 3-D Electrostatic Problems"

Dragan I. Olćan, Ivica M. Stevanović, Juan R. Mosig, and Antonije R. Djordjević

1:00-2:30 Lunch

Room: **Aida**
11:00-1:00 **Advances in Electromagnetic Modeling by WIPL-D Software**
Session Organizer: Branko Kolundzija
Session Chairs: Branko Kolundzija and Saad Tabet

Session 14

- 11:00-11:20 "Interfacing WIPL-D with Mechanical CAD Software"
Nataliya Bliznyuk and Bojan Janic
- 11:20-11:40 "Conformal Antenna Solutions for DMB terminal at S Band"
Saša Dragaš and Alberto Pellon
- 11:40-12:00 "Slotted Coaxial Line and Associated Measurement System for Determination of Dielectric Properties of Gas Plasma"
Ralf Klukas and IRK-Dresden
- 12:00-12:20 "Analysis of a Physically and Electrically Large UHF Antenna Array using WIPL-D"
Saad N. Tabet, Oliver E. Allen and John S. Asvestas
- 12:20-12:40 "Two Element Phased Array Dipole Antenna on Finite EBG Ground Plane"
Mitsuo Taguchi, Shinya Tanaka, and Kazumasa Tanaka
- 12:40-1:00 "Time-Domain Response of 3-D Structures Calculated Using WIPL-D"
Dragan I. Olčan, Marija M. Nikolić, Branko M. Kolundžija, and Antonije R. Djordjević
- 1:00-2:30** Lunch

Room: **Nabucco 2 Atto**
11:00-1:00 **New Techniques for Computational Electromagnetic Validation**
Session Organizer: Antonio Orlandi
Session Chairs: Antonio Orlandi and Alistar Duffy

Session 15

- 11:00-11:20 "Modeling Nonlinear Interactions between RF and Optical Fields In Traveling Wave Modulators using a Hybrid Approach"
A. Vukovic, E.V. Bekker, P. Sewell, T. M. Benson, J. Paul, N. K. Sakhnenko and A. G. Nerukh
- 11:20-11:40 "Using FSV to Compare Noisy Datasets"
J. Knockaert, J. Peuteman, J. Catrysse, R. Belmans
- 11:40-12:00 "The Importance of Proper Model Validation for EMI/EMC and Other CEM Applications"
Bruce Archambeault
- 12:00-12:20 "Quantifying EMC Measurement Accuracy Using Feature Selective Validation"
Alan Denton, Anthony Martin, and Alistair Duffy
- 12:20-12:40 "A Statistical Toolkit for Validation"
Alistair Duffy and Antonio Orlandi
- 12:40-1:00 "Development of a Benchmarking System for Hardware and Software-Based Computational Electromagnetic Solvers"
James P. Durbano, Fernando E. Ortiz, Ahmed S. Sharkawy, and Michael R. Bodnar
- 1:00-2:30** Lunch

Room: **Turandot**
11:00-4:30 **Computational RF and Thermal Dosimetry**
Session Organizers: Jafar Keshvari and Antonio Faraone
Session Chairs: Jafar Keshvari and Antonio Faraone

Session 16

- 11:00-11:20 "Thermal Elevation in Human Eye due to Walkie-Talkie Source"
C. Buccella, V. De Santis, and Mauro Feliziani
- 11:20-11:40 "Accuracy of Computational Methods used in the Study of RF Exposure of the Human Body"
Robert L McIntosh and Vitas Ander
- 11:40-12:00 "RF-Induced Temperature Elevations in the Inner Ear and Deep Brain Tissue Caused by Handheld Devices in the 400 MHz to 1850 MHz Range"
G. Schmid, R. Überbacher, T. Samaras
- 12:00-12:20 "Effect of the Hand in SAR Compliance Tests of Body Worn Devices"
Andrea Schiavoni and Mauro Francavilla
- 12:20-12:40 "Hyperthermia Treatment Modeling: is Prescriptive, Quantitative SAR Dosimetry to be Preferred over Thermal Dosimetry?"
M. de Bruijne, T. Samaras and G. C. Van Rhooen
- 12:40-1:00 "Temperature Rise in Human Tissue from SAR"
Christopher W. Penney and Raymond J. Luebbers
- 1:00-2:30** Lunch
- 2:30-2:50 "Computational Evaluation of SAR and Temperature Changes in the Head Models Carrying Metallic Implants following Exposure to 900, 1800 and 2450 MHz Dipole Near Field"
Hanna Matikka, Reijo Lappalainen and Jafar Keshvari
- 2:50-3:10 "Temperature Distribution in the Eye: Comparing Infrared Exposure to Radiofrequency Exposure"
V.M.M. Flyckt, B.W. Raaymakers, H. Kroeze and J.J.W. Lagendijk
- 3:10-3:30 "Numerical Analysis of a Printed E-Field Probe Array Used for Rapid SAR Assessment"
Benoît Derat, Andrea Cozza, Olivier Merckel, and Jean-Charles Bolomey
- 3:30-3:50 "The "Virtual Family" Project – Development of Anatomical Whole-Body Models of Two Adults and Two Children"
Andreas Christ, Wolfgang Kainz, Eckhart Hahn, Katharina Honegger, Jianxiang Shen, Wolfgang Rascher, Rolf Janka, Werner Bautz, Berthold Kiefer, Peter Schmitt, Hans-Peter Hollenbach, Ji Chen, Anthony Kam, Esra Neufeld, Michael Oberle, and Niels Kuster
- 3:50-4:10 "Standardization of the Computational Methodology for Assessing Human Exposure to RF Emitters Inside and Nearby Automotive Vehicles"
Antonio Faraone, Giorgi Bit-Babik, and Jagadish Nadakuduti

Room: **Nabucco 1 Atto**
11:00-4:30 **Efficient Numerical Solutions of Large Multi-dimensional Inverse Scattering Problems**
Session Organizers: Dominique Lesselier and Ann Francois
Session Chairs: Dominique Lesselier and Ann Francois

Session 17

- 11:00-11:20 "New Solution Strategies for Solving Large Scale 3D EM Inverse Problems"
Gregory A Newman and Michael Commer

- 11:20-11:40 "On Combining Model Reduction and Gauss-Newton Algorithms for Inverse Frequency Domain Maxwell Equation"
Vladimir Druskin and Mikhail Zaslavsky
- 11:40-12:00 "Imaging Damaged Parts of Buried Objects from Electromagnetic Cauchy Data"
Fioralba Cakoni and Housseem Haddar
- 12:00-12:20 "Overview of Inverse Scattering, Imaging, and Parallel Computing"
W. C. Chew, G. L. Wang, and A. J. Hesford
- 12:20-12:40 "Near Well-Bore Imaging of the Triaxial Induction Logging Data using the Multiplicative Regularized Contrast Source Inversion Method"
Aria Abubakar and Tarek M. Habashy
- 12:40-1:00 "Low-Frequency Modeling of 3-D Coupled Obstacles and Inversion by Differential Evolution"
A. Bréard, G. Perrusson, and D. Lesselier
- 1:00-2:30** Lunch
- 2:30-2:50 "Full-Wave Three-Dimensional Microwave Imaging with a Regularized Gauss-Newton Method"
J. De Zaeytijd and A. Franchois
- 2:50-3:10 "Eddy Current Imaging of Surface Breaking Defects by using Monotonicity Based Methods"
G. Rubinacci, A. Tamburrino, and S. Ventre
- 3:10-3:30 "Nanoscopy with Grating-Assisted Optical Diffraction Tomography"
P. C. Chaumet, K. Belkebir, F. Drsek, H. Giovannini, and A. Sentenac
- 3:30-3:50 "A PSO-Based Three-Dimensional Multi-Resolution Approach for the Numerical Solution of Large Inverse Scattering Problems"
M. Donelli, G. Franceschini, D. Franceschini, and A. Massa
- 3:50-4:10 "Shape Reconstruction in 3D Electromagnetic Induction Tomography using a Level Set Technique"
O. Dorn and U. Ascher
- 4:10-4:30 "3D MT Inversion with a Limited-Memory QN Method: Confirmation of Robustness"
Anna Avdeeva and Dmitry Avdeev

Room: **Nabucco 2 Atto** **Session 18**
2:30-6:30 **Computational Methods for Nondestructive Evaluation and Materials Characterization**
Session Organizer: Jeremy Knopp
Session Chairs: Jeremy Knopp and Michael Havrilla

- 2:30-2:50 "Electromagnetic Interactions with an Electrically Uniaxial Composite Layering"
S. Ossand'ón, M. Lambert, and D. Lesselier
- 2:50-3:10 "Clutter Removal and Inversion of Eddy-Current Impedance Data"
R. Kim Murphy, Harold A. Sabbagh, Elias H. Sabbagh, John C. Aldrin, Jeremy S. Knopp, and Eric Lindgren
- 3:10-3:30 "Modeling Pitting and Corrosion Phenomena by Eddy-Current Volume-Integral Equations"
R. Kim Murphy, Harold A. Sabbagh, Elias H. Sabbagh, John C. Aldrin, Eric Lindgren, and Jeremy S. Knopp
- 3:30-3:50 "Application of a Volume-Integral Code to Gap + Insert Problems in Aerospace Nondestructive Evaluation"
R. Kim Murphy, Harold A. Sabbagh, Elias H. Sabbagh, John C. Aldrin, and Jeremy S. Knopp
- 3:50-4:10 "A Novel Method for Simultaneously Extracting Electric and Magnetic Properties of Shielding Materials Using Two Coupled Collinear Open-Ended Waveguides"

James W. Stewart and Michael J. Havrilla

- 4:10-4:30 "Reliability Demonstration for an Eddy Current NDE Technique Using a Computational Electromagnetic Model-Assisted Approach"
John C. Aldrin, Jeremy Knopp, Eric Lindgren, Charles Annis, Harold A. Sabbagh, Elias H. Sabbagh, and R. Kim Murphy
- 4:30-4:50** Break
- 4:50-5:10 "Multi-Resolution Analysis of Mortar Diffusion Back-Scattered Signal in Civil Buildings"
Matteo Cacciola, Fabio La Foresta, Francesco Carlo Morabito, and Mario Versaci
- 5:10-5:30 "Using Circuit Simulation Optimization to Determine the Electrical Properties of Polymeric Composite Materials"
Lorenzo Bennett, W. Elliott Hutchcraft, Richard K. Gordon, Ellen Lackey, James G. Vaughan, and Reid Averill
- 5:30-5:50 "Application of Volume-Integral Equations to Modeling Anisotropic Grain Noise in Eddy-Current NDE"
Elias H. Sabbagh, Harold A. Sabbagh, R. Kim Murphy, Aparna Sheila-Vadde, and Mark P. Blodgett
- 5:50-6:10 "Reduced Magnetic Vector Potential and Electric Scalar Potential Formulation for Eddy Current Modeling"
Zhiwei Zeng, Xin Liu, Yiming Deng, Lalita Udpa, Jeremy S. Knopp, and Gary Steffes

Room: **Aida**

Session 19

2:30-6:30 **CST Modeling and Analysis**
Session Organizer: Thomas Weiland
Session Chair: Thomas Weiland

- 2:30-2:50 "Co-simulation with CST Microwave Studio and TICRA GRASP"
Michael J. Schneider and Richard W. Roberts
- 2:50-3:10 "FIT Modeling of Injection Probes for Bulk Current Injection"
Luca Di Rienzo, Flavia Grassi, and Sergio A. Pignari
- 3:10-3:30 "Applying EM Analysis Techniques during the Design Process of a High Speed Multi Pin Connector"
Thomas Gneiting
- 3:30-3:50 "Application of CST Microwave Studio for the Development of Mobile Communication Infrastructure RF Filters"
Roland Rathgeber
- 3:50-4:10 "Propagation of Ultrawideband Pulses and Specific Absorption rate within the Human Head"
Elena Filonenko, Jeff Hand, Tony Vilches, and Chris Toumazou
- 4:10-4:30 "3D EM-Simulation and Design of a Triple Mode Dielectric Cavity Filter with UMTS Characteristics"
Mark B. Child
- 4:30-4:50** Break
- 4:50-5:10 "Numerical Predictions by MWS of Conducted and Radiated Disturbances on Circuits and Cables Produced by an ESD Event"
S. Caniggia and F. Maradei
- 5:10-5:30 "Bandwidth Improvement of Monoconical Antenna Using Edge Bending Technique"
A. Mehdipour, H. Aliakbarian and M. Kamarei
- 5:30-5:50 "EMC, Power Integrity and SAR applications by using CST STUDIO SUITE 2006"
G. Antonini, A. di Pasquale, A. Orlandi, and R.M. Rizzi

- 5:50-6:10 "Electromagnetic Analysis use Cases with CST Microwave Studio"
Antti Renko
- 6:10-6:30 "Use of MW Studio in the Implementation of Metamaterial Configurations in Planar Circuit Technology"
Francisco Falcone, Eduardo Jarauta, Jesús Illescas, Israel Arnedo, Miguel Beruete, Txema Lopetegui, M. Angel Gómez-Laso, José Antonio Marcotegui, and M Sorolla

Room:
2:30-6:30

Rigoletto 1&2 Atto

Session 20

Modeling of Biomedical Problems - 1

Session Organizer: Maria Stuchly

Session Chairs: Carey Rappaport and Michael Okoniewski

- 2:30-2:50 "RF Power Requirements in Human MRI: Does Higher Field Strength Necessitate Higher RF power?"
Tamer S. Ibrahim and Lin Tang
- 2:50-3:10 "Two-Element T-Array for Cross-Polarized Breast Tumor Detection"
Houssam Kanj and Milica Popovic
- 3:10-3:30 "Numerical and Experimental Study of Electrode-Tissue Contact Surface in Electrochemotherapy of Cutaneous Tumor"
Selma Corovic, Bassim Al Sakere, Damijan Miklavcic, and Lluís M. Mir
- 3:30-3:50 "Recent Advances in Biomedical Modeling: Hyperthermia Treatment Planning"
Nicolas Chavannes, Esra Neufeld and Niels Kuster
- 3:50-4:10 "Numerical Models of Radio Frequency Ablation in Myocardium"
John A. Pearce
- 4:10-4:30 "Modeling Functional Imaging of Breast by Microwave Radiometry"
Fernando Bardati and Santina Iudicello
- 4:30-4:50** Break
- 4:50-5:10 "Clutter Reduction in Tissue Sensing Adaptive Radar (TSAR) Measurements used for Early Stage Breast Cancer Detection"
D. J. Kurrant, E. C. Fear, and D. T. Westwick
- 5:10-5:30 "Optimization Algorithms for Modeling of Electromagnetic Sources"
Markus Johansson, Andreas Fhager and Mikael Persson
- 5:30-5:50 "Two-Pole Debye Model for Normal Breast Tissue in the Microwave Frequency Range"
Mariya Lazebnik, Susan C. Hagness, John H. Booske, and Michal Okoniewski
- 5:50-6:10 "Modeling and Inversion of Weakly Scattering Structure in Electrically Large Cells"
Ersel Karbeyaz and Carey Rappaport
- 6:10-6:30 "Investigating the Effects of External Fields' Polarization on the Coupling of Pure Magnetic Waves to the Human Body in Very Low Frequencies"
L. Golestani-Rad, B. Elahi, and J. Rashed.Mohasse

Room: **Turandot** **Session 21**
4:50-6:30 **Computer Simulation of Electromagnetic-System Testing**
Session Organizer: Ross Speciale
Session Chair: Ross Speciale

4:50-5:10 "Application of Nonlinear Time Series Analysis to the Ionospheric Data"
Victor A. Eremenko and Natalia I. Manaenkova

5:10-5:30 "Computer-Simulation of Near-Field Phased-Array Radiation-Pattern Scanning"
Ross A. Speciale

5:30-5:50 "Wave Propagation on Two Dimensional Doubly-Periodic Guiding Structures"
Ross A. Speciale

Room: **Nabucco 1 Atto** **Session 22**
4:50-6:30 **MEFiSTo Modeling and Analysis**
Session Organizer: Poman So
Session Chair: Poman So

4:50-5:10 "Using YATPAC for Modeling of a Marchand Balun"
Hristomir Yordanov and Peter Russer

5:10-5:30 "MEFiSTo Modeling and Analysis for EM Education"
Poman So

5:30-5:50 "Advanced Multi-Level Electromagnetic Modeling and Design with MEFiSTo"
Wolfgang J. R. Hoefer

Thursday, March 22

8:00-5:00 **Conference Registration**

8:00-5:00 **Exhibitors**

Room: **Aida** **Session 23**
8:30-10:30 **Plenary Session - C**

8:30-9:30 "Computational Electromagnetics in Biomedical Problems: Challenges and Some Solutions"
Maria A. Stuchly

9:30-10:30 "Computational Electromagnetics Applied to Portable Antenna Research"
Antonio Faraone

10:30-11:00 Break

Room: **Turandot** **Session 24**
11:00-1:00 **Nature-Based Stochastic Optimization Methods**
Session Organizers: Douglas Werner and Ping Werner
Session Chairs: Douglas Werner and Ping Werner

11:00-11:20 "Optimizing Optical Negative Index Materials: Feedback from Fabrication"
Alexander V. Kildishev*, Uday K. Chettiar, Hsiao-Kuan Yuan, Wenshan Cai, and Vladimir M. Shalaev

11:20-11:40 "Array Thinning Using Ant Colony Optimization"

Stefano Mosca and Matteo Ciattaglia

- 11:40-12:00 "Benchmark Problems for Antenna Optimization"
Mario Fernández Pantoja, Amelia Rubio Bretones, Salvador González García, and Rafael Gómez Martín
- 12:00-12:20 "Design and Application of Autopolyploidy Based Polyfractal Expansions for Large Scale Genetic Algorithm Optimization of Antenna Arrays"
Joshua S. Petko and Douglas H. Werner
- 12:20-12:40 "Parallel Particle Swarm Optimization with Sub-Boundary Partitioning for Frequency Selective Surfaces Design"
Simone Genovesi, Agostino Monorchio, Raj Mittra, and Giuliano Manara

Room: **Nabucco 1 Atto**

Session 25

11:00-1:00 Modeling of Biomedical Problems - 2

Session Organizer: Maria Stuchly

Session Chairs: Maria Stuchly and Paul Meaney

- 11:00-11:20 "FDTD Calculations of Specific Energy Absorption Rate in Seated and Standing Human Voxel Models from 10 MHz to 300 MHz"
Richard Findlay and Peter Dimbylow
- 11:20-11:40 "The Effect of Body Posture and Size on the Calculation of Induced Current Densities from Applied Electric and Magnetic Fields at 50 Hz"
Peter Dimbylow and Richard Findlay
- 11:40-12:00 "Interaction between Pacemakers Implanted in Realistic Human Models and the Radio Frequency Field Produced by Magnetic Resonance Imaging Apparatus"
S. Pisa , G. Calcagnini, M. Cavagnaro, E. PiuZZi, E. Mattei, P. Bernardi
- 12:00-12:20 "Optimal Coupling Bath Selection for Microwave Imaging in the Neoadjuvant Breast Chemotherapy Monitoring Mode"
Paul M. Meaney, Christine A Kogel, Peter A. Kaufman, Stephen P. Poplack, Margaret W. Fanning, Keith D. Paulsen
- 12:20-12:40 "2-D Computational Study of the Microwave-Induced Thermoacoustic Effect on Human Breast with Tumor"
Guangran Zhu and Milica Popovic
- 12:40-1:00 "SAR and Diversity Performance of Wireless Handheld Devices with Dual Antennas"
R. Eliassi, Y. Rahmat-Samii, P. Hui, and A. Toropainen
- 1:00-2:30** Lunch

Room: **Rigoletto 1&2 Atto**

Session 26

11:00-1:00 MoM and Applications

Session Chairs: Andrew Drozd and Raed Shubair

- 11:00-11:20 "New Basis functions for the Electromagnetic Solution of Arbitrarily-shaped, Three Dimensional Conducting bodies using Method of Moments"
Anne I. Mackenzie, Michael E. Baginski, and Sadasiva M. Rao
- 11:20-11:40 "Analysis of Radiofrequency Coils for Magnetic Resonance Imaging using the Numerical Electromagnetic Code (NEC)"
Ricardo Marcal Matias
- 11:40-12:00 "Wavelet Packet Transform of the Method of Moments Matrix for Large-Scale Problems"
S. H. Zainud-Deen, H. A. Malhat, K. H. Awadalla, and H. A. Sharshar

- 12:00-12:20 "Wavelet Packet Transform with Iterative Technique based on Method of Moments"
S. H. Zainud-Deen, H. A. Malhat, K. H. Awadalla, and H. A. Sharshar
- 12:20-12:40 "A Partial Analytical Solution for the Logarithmic Singularity Associated with MoM Applied to Dielectrics and its Evaluation with Polynomial Quadratures"
Thierry Gilles, Marc Piette, and Christophe Craeye
- 12:40-1:00 "Comparisons of CEM Predictions to IR Images of EM Fields for Complex Systems"
John Norgard, Randall Musselman, Andrew L. Drozd, and Irina P. Kasperovich
- 1:00-2:30** Lunch

Room: **Poster Hall**

Session 27

11:00-1:00 **Poster Sessions 1**

Session Chairs: Richard K. Gordon

"On The Capacity of Indoor MIMO Channels"
Shirook Ali, Geyi Wen, and Farzaneh Kohandani

"Approximately Low Frequency Electromagnetic Study of a Converter-Fed Squirrel Cage Induction Motor"
C. Grabner

"A Potential Method for EM Scattering Calculations"
Magnus Herberthson

"EM Scattering from Bodies of Revolution using the Locally Corrected Nystrom Method"
Aihua W. Wood

"Micro Hall-type Electric Propulsion System: Simultaneous Solution of Plasma Magneto-hydrodynamic Instability and Thruster Core Overheating"
Takeshi Furukawa

"Stochastic Optimization of a Patch Antenna"
S. Alfonzetti, G. Borzi, E. Diletto, and N. Salerno

"Variable Phase-Shifter/Down Converter for Active Microstrip Phased Array Antenna Applications"
L. F. Herrán, S. Ver Hoeye, M. Fernández, and F. Las Heras

"Indoor Field Strength Prediction Based on Neural Network Model and Particle Swarm Optimization"
Ivan Vilovic, Niksa Burum, and Zvonimir Sipus

"CEST : a Complex Environment Simulation Tool"
Emidio Di Giampaolo

"Validity of Approximate Boundary Conditions in Analysis of Strip-Loaded Planar and Curved Surfaces"
Zvonimir Sipus and Per-Simon Kildal

"Solutions of Large Integral-Equation Problems with Parallel Preconditioned MLFMA"
Levent Grel, zgr Ergl, and Tahir Malas

"Design and Fabrication of a Microstrip TRL Calibration Kit for Measurement of RF Components"
Dalia Elsherbeni, Elliott Hutchcraft, Darko Kajfez, and Richard K. Gordon

"Apertures-Coupled Multi-Layer Cylindrical Dielectric Resonator Antennas and Modal Analysis"
Wei Huang and Ahmed A. Kishk

1:00-2:30 Lunch

Room:
2:30-4:30

Poster Hall
Poster Sessions 2
Session Chairs: Elliott Hutchcraft and A. A. Arkadan

Session 28

"A Parallel Code for Time Dependent Acoustic Scattering Involving Passive or Smart Obstacles"
Francesco Zirilli

"Increased Performance in Computational Electromagnetics through the use of Graphics Processing Units"
Maxwell Woolsey, W. Elliott Hutchcraft, and Richard K. Gordon

"Theoretical and Experimental Analysis of Rectangular Waveguides with Isotropic Chiral Media"
Álvaro Gómez, Ismael Barba, Ana C. L. Cabeceira, José Represa, Gregorio Molina-Cuberos, M^a José Núñez, José Margineda, Ángel Vegas, and Miguel A. Solano

"To the Glory of G.Galileo and J.K.Maxwell: Electromagnetic Modeling of the Origin of Saturn's Rings from Superconducting Particles of the Protoplanetary Cloud"
Vladimir V. Tchernyi

"Application of Web-Splines for Coaxial Waveguides"
Gökhan Apaydin, Niyazi Ari, and Selim Seker

"Reduced-Order Root-MUSIC Source Localization Using Displaced Sensor Arrays"
R. M. Shubair

"Analysis of Slotted Rectangular Microstrip Antenna Using De-segmentation and PDCM Method"
Byoung Woo Park and Dong Kug Seo

"Analytical Study on Reduction Uneven Heating of Food Inside Industrial Microwave Oven by using of Water Film"
Ryosuke SUGA, Taichi IJUIN, Osamu HASHIMOTO, Tetsuya TAKATOMI, and Shinya WATANABE

"Mixed 3D Finite Element and Circuit Based Modelling of Unshielded Twisted Pairs"
Sriram Dorai and Anthony J Peyton

"MONURBS: A Parallelized Fast Multipole Multilevel Code for Analyzing Complex Bodies Modeled by Nurbs Surfaces"
I. González, E. García, F. Sáez de Adana, M. F. Cátedra

"On the Numerical Determination of Electromagnetic Fields Near Material Interfaces Using Radial Basis Functions in a Meshless Method"
Richard K. Gordon, W. Elliott Hutchcraft, Brandon Smith, and John Ashmore

"Optimization of Circuit Equivalent Model for MESFETs"
Lisa Jordan, Elliott Hutchcraft, Richard K. Gordon and Darko Kajfez

"Dispersion Engineering with MATLAB"
Giuseppina Monti, Luciano Tarricone

Room:
11:00-6:30

Nabucco 2 Atto
Detection and Imaging: Theoretical, Algorithmic, Technology and System Advances
Session Organizers: Andrea Massa and Christian Pichot
Session Chairs: Andrea Massa and Christian Pichot

Session 29

11:00-11:20 "Two Approaches for Inverse Profiling from Phaseless Data"
Kamal Belkebiry, Lorenzo Crocco, Michele D'Urso, Tommaso Isernia, and Amélie Litman

11:20-11:40 "A New Method for Shape Reconstruction of Perfectly Conducting Targets"
Lorenzo Crocco, Ibrahim Akduman, Mehmet Cayören, and Ali Yapar

- 11:40-12:00 "2.5D Forward Solver to Model Scattering of Long Dielectric Cylinders in an Active Millimeter Wave Imaging System"
S. Van den Bulcke and A. Franchois
- 12:00-12:20 "Microstrip Antenna with Shorting Pins as a Sensor for Landmines Detection"
S.H. Zainud-Deen, M. E. Badr, K.H. Awadalla, and H.A. Sharshar
- 12:20-12:40 "Two-and-half Dimension Integral Equation Method for Geophysical Electromagnetic Problems"
Aria Abubakar, Peter M. van den Berg, and Tarek M. Habashy
- 12:40-1:00 "On the MUSIC-Type Electromagnetic Imaging of a Small Collection of 3-D Dielectric Spheres from its Multi-Static Response using Exact and Asymptotic Numerical Data"
E. Iakovleva and D. Lesselier
- 1:00-2:30** Lunch
- 2:30-2:50 "Electrical Impedance Tomography with Resistor Network Approximation on Optimal Grids"
Liliana Borcea, Vladimir Druskin, Fernando Guevara Vasquez, and Leonid Knizhnerman
- 2:50-3:10 "Quadratic Time-Frequency Distribution as Applied to Detection of Objects Buried under a Rough Surface"
Nicolas Morelle, Marc Saillard, and Nadege Thirion-Moreau
- 3:10-3:30 "Multi-Frequency/Multi-Scaling Techniques for the Electromagnetic Inversion of Lossless Profiles - A Numerical Comparison"
D. Franceschini, M. Donelli, G. Franceschini, and A. Massa
- 3:30-3:50 "Microwave Tomographic Techniques for Explosive and Flammable Liquid Detection"
Paul M. Meaney, Edward M. Godshalk, Timothy Raynolds, Gregory C. Burke, and Keith D. Paulsen
- 3:50-4:10 "Model-Based Inversion Algorithm for Structural and Conductivity Reconstruction of Marine Controlled-Source Electromagnetic Data"
Yan Zhang, Aria Abubakar, and Tarek Habashy
- 4:10-4:30 "Inverse Scattering and Edge Detection: The Threshold Problem for the Linear Sampling Method"
M. Piana, M. Brignone, R. Aramini, and J. Coyle
- 4:30-4:50** Break
- 4:50-5:10 "Crack Detection using a Level-Set Technique and Thin Shapes"
D. Alvarez, O. Dorn, and M. Moscoso
- 5:10-5:30 "Reconstruction of 3-D Irregular Shape of Breast Cancer Tumor Using the Adjoint-Field Scheme in the Microwave Imaging Algorithm"
Magda El-Shenawee, Oliver Dorn, and Miguel Moscoso
- 5:30-5:50 "Pade Via Lanczos Inversion Using Multiple Measurements"
Rob F. Remis
- 5:50-6:10 "Conducting Scatterer Reconstruction Using Differential Evolution and Particle Swarm Optimization"
Ioannis T. Rekanos

Room: **Aida**

Session 30

11:00-6:30 SEMCAD X: Recent Modeling Advances for Virtual Prototyping

Session Organizer: Nicolas Chavannes

Session Chairs: Nicolas Chavannes and Erdem Ofli

- 11:00-11:20 "Reliable Prediction of Mobile Telecommunications Equipment Performance for Different In-Use Conditions by TCAD"

P. Futter, N. Chavannes, R. Tay, K. Pokovic, and N. Kuster

- 11:20-11:40 "Technical Equipment for Research of Biological Effects of EM Field"
Jan Vrba, Luca Vannucci, Peter Peschke, Frantisek Vožeh, Max Vojtišek, PaoloTogni, Jan Vrba(jr), Tomáš Dríždál, and Radim Zajicek
- 11:40-12:00 "Dosimetric Evaluation and Comparison of Different Exposure Setups Used in Provocation Studies"
Clementine Boutry, Albert Romann, Sven Kuehn, Neviana Nikoloski, Jafar Keshvari, and Niels Kuster
- 12:00-12:20 "Evaluation of Emerging Hardware Platforms for Faster Electromagnetic Simulations"
Ryan Schneider, Dan Cyca, Chris Mason, and Michal Okoniewski
- 12:20-12:40 "Advantage of Modeling Broadband Antennas with SEMCAD-X FDTD Conformal Solver"
Houssam Kanj, Yi Zhang and Milica Popović
- 12:40-1:00 "A Patch Antenna Design for a Head and Neck Hyperthermia Applicator"
Margarethus M. Paulides, Jurriaan F. Bakker, and Gerard C. Van Rhooen
- 1:00-2:30** Lunch
- 2:30-2:50 "A Combined Numerical and Experimental Procedure for the MR-Safety Testing of Stents"
Eugenia Cabot, Andreas Christ, Michael Oberle, and Niels Kuster
- 2:50-3:10 "Computational Study on the Effect of Pierced Metallic Objects at 900 MHz"
José Fayos-Fernández, Antonio M. Martínez-González, and David Sánchez-Hernández
- 3:10-3:30 "Failure Modes and Effects Analysis (FMEA) on the RF Performance of Mobile Phones Using TCAD"
R. Tay, P. Futter, N. Chavannes, G.H. Ng, and N. Kuster
- 3:30-3:50 "An Ontology-Based Decision Maker for Electromagnetic Problem Solving"
Alessandra Esposito, Luciano Tarricone, and Laura Vallone
- 3:50-4:10 "Research of Medical and Industrial Applications of Microwaves Supported by SEMCAD"
Jan VRBA

Room: **Turandot**
2:30-4:30 **High Power Microwave**
Session Organizer: Ross Speciale
Session Chair: Ross Speciale

Session 31

- 2:30-2:50 "Unusual Features of the Pseudo Non-Diffracting Microwave Vortex"
Ross A. Speciale
- 2:50-3:10 "Fundamental Physical Requirements for Microwave-Vortex Radiation-Systems"
Ross A. Speciale
- 3:10-3:30 "A Pseudo Non-Diffracting Microwave Vortex"
Ross A. Speciale
- 3:30-3:50 "Split-Torus Configuration of the Toroidal/Helical Electron-Orbits for High-Power Microwave Amplifiers"
Ross A. Speciale
- 3:50-4:10 "High-Efficiency Energy-Storage for Pulsed HPM Sources"
Ross A. Speciale
- 4:10-4:30 "Exact Expressions of the Orbit-Curvature and Curvature-Radius of the Toroidal/Helical Orbits"
Ross A. Speciale

Room:

Rigoletto 1&2 Atto

Session 32

2:30-6:30

Macromodeling for EMC and SI Complex Systems

Session Organizer: Giulio Antonini

Session Chairs: Giulio Antonini and Marc Piette

2:30-2:50

"Full-Spectrum Convolution Macromodeling for the Full-Wave PEEC Method"
Sergey V. Kochetov, Guenter Wollenberg, and Marco Leone

2:50-3:10

"Parallelized Integral Equation Methods for Signal Integrity"
Vikram Jandhyala, James Pingenot, Indranil Chowdhury, Arun Sathanur, and Devan Williams

3:10-3:30

"Combined Loss Mechanism and Stability Model for the Partial Element Equivalent Circuit Technique"
Albert Ruehli and Giulio Antonini

3:30-3:50

"Electromagnetic Modeling of Automotive Platforms based on the PEEC Method"
Jonas Ekman, Giulio Antonini, Giuseppe Miscione, and Peter Anttu

3:50-4:10

"Rational Approximation of Noisy Frequency Responses"
D. Deschrijver, M. Schoeman, T. Dhaene, and P. Meyer

4:10-4:30

"An Improved Time-Domain Near-Field to Far-Field Transformation in Two Dimensions"
J. Alan Roden, Steven L. Johns, and Joseph Sacchini

4:30-4:50

Break

4:50-5:10

"Macro-Modeling of the Defected Ground Structure by the Rational Function Fitting"
Sungtek Kahng

5:10-5:30

"Virtual Source Modeling of the High-Frequency Scattering of the Infinite Conducting Strip under Cylindrical Wave Excitation"
Marc Piette

Room:

Nabucco 1 Atto

Session 33

2:30-6:30

Advanced EMC Modeling

Session Organizers: Lionel Pichon and Philip Sewell

Session Chairs: Lionel Pichon, Ana Vukovic, and Antonio Maffucci

2:30-2:50

"Conducted Electromagnetic Interference Prediction in Integrated Motor Drive"
O. A. Mohammed, S. Ganu, Z. Liu, N. Abed, S. Liu

2:50-3:10

"Rigorous Investigation of Induced Fields on Different Parts of a Typical PCB Exposed to External Radiation"
L. Golestani-Rad, S. Hamidifar, and J. Rashed-Mohassel

3:10-3:30

"A General Framework for Mixed Structured/Unstructured PEEC Modelling"
Fabio Freschi, and Maurizio Repetto

3:30-3:50

"High-Frequency Full-Wave Analysis of Interconnects with Inhomogeneous Dielectrics through an Enhanced Transmission Line Model"
A. G. Chiariello, A. Maffucci, G. Miano, F. Villone, and W. Zamboni

3:50-4:10

"Performance Capability Modeling and Optimization of RF and Millimeter Wave Systems Using Hybrid Statistical/Electromagnetic Techniques"
Daniela Staiculescu, Lara Martin, Jong-Hoon Lee, and Manos Tentzeris

- 4:10-4:30 "Electromagnetic Analysis of the Numerical Dispersion and Lossy Media Using the One-Step method"
D. Lautru, J. Silly-Carette, M. F. Wong, J. Wiart, and V. Fouad Hanna
- 4:30-4:50** Break
- 4:50-5:10 "Interconnect Macro-Modeling using 3D Computational Techniques"
Brahim Essakhi, Jérémie Bénéel, Gilles Akoun, and Lionel Pichon
- 5:10-5:30 "Transmission Line Matrix Method coupled to Integral Equations for simulation of Electromagnetic Interferences"
Fabien Ndagijimana, Amir Reza Attari, J. Dansou, and K. Barkeshli
- 5:30-5:50 "Transient Response of a Thin Wire above a Real Ground using a Simplified Reflection Coefficient Approach"
D.Poljak, N.Kovač
- 5:50-6:10 "Development of Time-Domain Surface Macromodels from Material Measurements"
Ian D. Flintoft, John F. Dawson, Andrew C. Marvin and Stuart J. Porter
- 6:10-6:30 "Capabilities of Empirical TLM Air-vent Model"
Nebojsa Doncov, Bratislav Milovanovic

Room: **Turandot** **Session 34**
4:50-6:30 **Advanced Modeling Techniques and The Application of Microwave Devices**
Session Organizer: **Michiko Kuroda**
Session Chairs: **Michiko Kuroda and Manos Tentzeris**

- 4:50-5:10 "Improved Version of the Second-Order Mur Absorbing Boundary Condition Based on a Nonstandard Finite Difference Model"
James B. Cole and Saswatee Banerjee
- 5:10-5:30 "A New Approach for Deembedding Active Devices from Active Grids"
C. Rieckmann, Y. Hao, and C. G. Parini
- 5:30-5:50 "Analysis of Parylene-C as a Novel Structural Material for Electrostatic Capacitive MEMS RF Switches"
Jian-Ming Chen, Guang-Min Wu, Jian-Jun Zhao, Ze-Bin Fan, and Li Zhu
- 5:50-6:10 "Transient Effect of 3D RF-MEMS Structures with Moving Plate"
Hiroshi Iwamatsu and Michiko Kuroda

Friday, March 23

8:00-12:00 **Conference Registration**

Room: **Rigoletto 1&2 Atto** **Session 35**
8:30-10:30 **Ill-Posed Electromagnetic Inverse Problems: Theory and Applications**
Session Organizer: **Michael Zhdanoy**
Session Chairs: **Michael Zhdanoy and Michael Zhdanov**

- 8:30-8:50 "Real-Time Inversion of Electromagnetic Logging Data in Vertical and Deviated Wells"
Michael A. Frenkel
- 8:50-9:10 "On the Structure Electromagnetic Inverse Problem"
Peter S. Martyshko and Alexey L. Roublev

- 9:10-9:30 "Imaging of a Subsurface Conductivity Distribution using a Time-Domain ElectroMagnetic Borehole Conveyed Logging Tool"
Erik J. Banning, Terry Hagiwara, and Richard M. Ostermeier
- 9:30-9:50 "Regularized Three-Dimensional Inversion of Array Tensor Induction Logging Data"
Michael S. Zhdanov and Alexander Gribenko
- 9:50-10:10 "A Hybrid Finite Difference Frequency Domain and Particle Swarm Optimization Techniques for Forward and Inverse Electromagnetic Scattering Problems"
S. H. Zainud-Deen, Mourad S. Ibrahim, and Emad El-Deen
- 10:10-10:30 "Rigorous Three-Dimensional Magnetotelluric Inversion and Resolution Analysis"
Michael S. Zhdanov

10:30-11:00 Break

Room: **Turandot**

Session 36

8:30-10:30 **Wideband and Multiband Antennas**

Session Organizer: **Marc Piette**

Session Chairs: **Marc Piette and Ross Speciale**

8:30-8:50 "A Novel Miniaturized Dual-Band Inverted-F Antennas with Spiraling Tail"
Yu-Shin Wang and Shyh-Jong Chung

8:50-9:10 "Finite Array Analysis through Combination of Macro Basis Functions and Array Scanning Methods"
Christophe Craeye and R'emi Sarkis

9:10-9:30 "Design of More Affordable and Reliable Electronically-Steered Phased Arrays"
Ross A. Speciale

9:30-9:50 "Network Digital Ionospheric Station "PARUS": Development and Perspective"
Alexander L. Karpenko and Natalia I. Manaenkova

9:50-10:10 "Investigation of a Microstrip Antenna Array Conformal to a Paraboloidal Surface"
Sharath Kumar, Maryam Parsa, and Amir I. Zaghoul

10:30-11:00 Break

Room: **Nabucco 2 Atto**

Session 37

8:30-1:00 **Innovation in the Macromodeling of High Speed Interconnects**

Session Organizer: **Flavio Canavero**

Session Chairs: **Flavio Canavero and Antonio Maffucci**

8:30-8:50 "Macromodeling of High-Speed Interconnects with Complex Discontinuities"
Rodolfo Araneo, Salvatore Celozzi, and Francescaromana Maradei

8:50-9:10 "Study of Sensitivity and Response Bounds Definition of Microwave Circuits by the Use of the Adjoint Network in the Wavelet Domain"
Sami Barmada, Antonino Musolino, and Rocco Rizzo

9:10-9:30 "Broad-band Characterization of Wire Interconnects Using a Surface Integral Formulation with a Surface Effective Impedance"
A. Maffucci, G. Rubinacci, S. Ventre, F. Villone, and W. Zamboni

9:30-9:50 "A Simplified Statistical Model for Crosstalk in Balanced Twisted Pairs"
Sergio A. Pignari and Giordano Spadacini

9:50-10:10 "Design Optimization of EM Launchers"
A. A. Arkadan and N. Al Awar

- 10:30-11:00** Break
- 11:00-11:20 "Fast Low-Frequency Impedance Extraction using a Volumetric Three-Dimensional Integral Formulation"
A. Maffucci, G. Rubinacci, A. Tamburrino, S. Ventre, and F. Villone
- 11:20-11:40 "Optimization of a High-Speed Interconnect Link under Signal Integrity Constraints"
S. Grivet-Talocia, M. Bandinu, I. S. Stievano, and F. Canavero
- 11:40-12:00 "Full Wave Analysis of Propagation in Arbitrary Section Dielectric and Conducting Transmission Lines"
Mario Lucido, Gaetano Panariello, and Fulvio Schettino
- 12:00-12:20 "Low-Frequency Analysis of Electromagnetic Interference from SMPS"
Ugo Reggiani, Leonardo Sandrolini, and Gian Lorenzo Giuliattini Burbui

1:00-2:30 Lunch

Room: **Nabucco 1 Atto** **Session 38**
8:30-1:00 **Advances in Conformal Time-Domain Methods: Finite-Volume and Discontinuous Galerkin Methods**
Session Organizers: Pierre Bonnet and Christophe Fumeaux
Session Chairs: Pierre Bonnet and Christophe Fumeaux

- 8:30-8:50 "A Discontinuous Galerkin Method to Solve Maxwell Equation in Time Domain"
E. Montseny, S. Pernet, X. Ferrieres, M. Zweers, and G. Cohen
- 8:50-9:10 "Evaluation of FVTD Dissipation and Time-Domain Hybridization for MSRC Studies"
S. Lallechere, P. Bonnet, S. Girard, F. Diouf, and F. Paladian
- 9:10-9:30 "Local Time Stepping Discontinuous Galerkin Time Domain Method for Solving Maxwell Equations"
Man-Fai Wong and Joe Wiart
- 9:30-9:50 "DG-FEM for CEM with Uncertainty"
C. Chauvi`ere, J. S. Hesthaven, L. Lurati, and L. C. Wilcox
- 10:30-11:00** Break
- 11:00-11:20 "CFS – PML for Absorbing Boundary Condition in Discontinuous Galerkin Method in the Time Domain"
Christophe Guiffaut, Stephanie Petit Halajda, and Alain Reineix
- 11:20-11:40 "Necessary Stability Criterion for Unstructured Mesh Upwinding FVTD Schemes for Maxwell's Equations"
Dmitry K. Firsov and Joe LoVetri
- 11:40-12:00 "Different Perfectly Matched Absorbers for Conformal Time-Domain Method: A Finite-Volume Time-Domain Perspective"
Krishnaswamy Sankaran, Thomas Kaufmann, Christophe Fumeaux, and Rüdiger Vahldieck

1:00-2:30 Lunch

Room: **Aida** **Session 39**
8:30-4:30 **Analysis and Design of Antennas for Wireless Communications**
Session Organizer: Paolo Nepa
Session Chairs: Paolo Nepa and Giovanni Riccio

- 8:30-8:50 "Singly-Fed Circularly Polarized Electromagnetically Coupled Patch Antenna"
Amir Hajiaboli and Milica Popović
- 8:50-9:10 "Harmonic Tuning for Ku-Band Dielectric Resonator Antennas"

A. Guraliuc, G. Manara, G. Nenna, P. Nepa, G. Pelosi, and S. Selleri

- 9:10-9:30 "Microstrip Antenna Array with Beamforming Network for WLAN Applications"
Traii Mbarek, Ghayoula Ridha, and Gharsallah Ali
- 9:30-9:50 "Design of Mobile Phone Antenna with Multi-band for SAR reduction"
Nam Kim, Seungwoo Lee, Sang-myeong Park, and Ho-min Lee
- 9:50-10:10 "Beam Scanning using Integrated Microstrip Ferrite Phase Shifter"
Sheikh Sharif Iqbal and Mir Riyaz Ali
- 10:10-10:30 "A Finite Element Domain Decomposition Method for the Analysis of Finite Antenna Arrays"
Vineet Rawat, Kezhong Zhao, Seung-Cheol Lee, and Jin-Fa Lee
- 10:30-11:00** Break
- 11:00-11:20 "Accurate 3D Characterization and Synthesis of Real Antenna Arrays via Support Vector Regression"
Rafael G. Ayestaran and Fernando Las-Heras
- 11:20-11:40 "Wireless Communication Antennas: Special Requirements and New Designs of Dielectric Resonator Antenna"
Yahia M. M. Antar and Debatosh Guha
- 11:40-12:00 "EFIE-MoM Techniques with Wires and Plates for Modeling Antenna Near Field"
Jaime Laviada, Fernando Las-Heras, and Marcos R. Pino
- 12:00-12:20 "Design, Analysis and Experimental Evaluation of a New Broadband Antenna for Naval Systems"
L. Mattioni and G. Marrocco
- 12:20-12:40 "Interaction between Mobile Antennas and Human Proximities"
S. H. Zainud-Deen, Emad El-Deen, H. A. Sharshar, and M. A. Binyamin
- 1:00-2:30** Lunch
- 2:30-2:50 "Radiation Pattern of a Networks Antenna Supplied with Butler Matrix, Comparison with a Multi-Layer Structure"
Traii Mbarek, Ghayoula Ridha, and Gharsallah Ali
- 2:50-3:10 "Investigation of Dielectric Resonator Antennas for Base Station Application"
Andreas Lambrecht, Juan Pontes, and Werner Wiesbeck
- 3:10-3:30 "Integrated Disk-loaded Monopole Array Antenna and the Small PIFA Antennas"
M. R. Kamarudin, P. S. Hall, F. Colombel, and M. Himdi
- 3:30-3:50 "A Nonredundant Sampling Based Method for the Directivity Computation"
F. D'Agostino, F. Ferrara, C. Gennarelli, R. Guerriero, and G. Riccio
- 3:50-4:10 "Partitioned Square Loop Antenna"
Veysel Demir, Roger Hasse, Darko Kajfez, and Atef Elsherbeni

Room:

Turandot

Session 40

11:00-4:30

Applications Based on FDTD

Session Chairs: Malgorzata Celuch and Nader Farahat

11:00-11:20

"Evaluation of FDTD Regimes for Scattering from Periodic Structures"
Bartlomiej W. Salski and Wojciech K. Gwarek

11:20-11:40

"A New Design of Broadband Microstrip Leaky - Wave Antenna"

Onofrio Losito

- 11:40-12:00 "Modeling of Active Circuits Using FDTD Approach"
Iman Farghadan, Tohid Zargar Ershadi, and Ahmad Fayaz
- 12:00-12:20 "Analysis of Optical Fiber Waveguides using the Body of Revolution Version of the Finite Difference Time Domain Method"
Nader Farahat, Raj Mittra, and Jose Carrion
- 12:20-12:40 "1D Multipoint Auxiliary Propagator (1D-MAP) for Perfectly Matching Plane Wave Huygen's Sources in FDTD"
Tengmeng Tan and Michael E. Potter
- 12:40-1:00 "Open Stripline Resonator Sensor for Gauging in Industrial Applications"
Nathan Ida and Nader Farahat
- 1:00-2:30** Lunch
- 2:30-2:50 "Parallel FDTD Processing on Shared Memory Computers"
Tomasz Ciamulski, Maciej Sypniewski, Andrzej Wieckowski, Mats Hjelm, and Hans-Erik Nilsson
- 2:50-3:10 "Modeling and Characterization of Spiral Inductors Based on a Standard Silicon Technology"
V. Palazzari, P. Placidi, F. Placentino, A. Scarponi, F. Alimenti, L. Roselli, and A. Scorzoni
- 3:10-3:30 "Electromagnetic Scattering by Conducting/Dielectric Objects"
S. H. Zainud-Deen, Emad El-Deen, and Mourad S. Ibrahim

Room:

Rigoletto 1&2 Atto

Session 41

11:00-4:30

Computational Electromagnetics for Photonics

Session Organizer: Gerard Berginc

Session Chairs: Gerard Berginc and Shiroom Ali

- 11:00-11:20 "Simulation and Optimization of Photonic Crystal Structures"
Christian Hafner, Jasmin Smajic, Cui Xudong, and Ruediger Vahldieck
- 11:20-11:40 "Analysis of the Scattering from Rough Surfaces with the Curvilinear Coordinate Method and the Short-Coupling Approximation"
Karim Ait Braham and Richard Dusséaux
- 11:40-12:00 "Near-Field Imaging of a Silver Nanowire Using a Thin Silver Film"
Zhengtong Liu, Alexander V. Kildishev, Vladimir P. Drachev, and Vladimir M. Shalaev
- 12:00-12:20 "On the Design of Optical Antenna"
Christian Hafner, Cui Xudong, Andre Bertolace, and Ruediger Vahldieck
- 12:20-12:40 "Theoretical Model for Diffuse Optical Wave Scattering from a Three-Dimensional Slab Bounded by Randomly Rough Surfaces"
Gerard Berginc and Claude Bourrely
- 12:40-1:00 "Control of the Coherence of Light Scattered from a One-Dimensional Randomly Rough Surface that Acts as a Schell-Model Source"
Tamara A. Leskova, Alexei A. Maradudin, and Eugenio R. M'endez
- 1:00-2:30** Lunch
- 2:30-2:50 "Modeling Localized Surface Plasmons in Light Tunneling and New Optical Sensing Approach"
Yuyang Feng, Morten Willatzen, and Niels Lervad Andersen

2:50-3:10 "Replacement of Ensemble Averaging by the use of a Broadband Source in Scattering from Randomly Rough Surfaces"
Alexei A. Maradudin, Tamara A. Leskova, and Eugenio R. M'endez

3:10-3:30 "Modeling of Micro-Structured Surfaces for Antireflecting Properties in the Infrared Domain"
R. Bouffaron, L. Escoubas, J.J. Simon, Ph. Torchio, G. Berginc, and Ph. Masclet

Room: **Nabucco 2 Atto**

Session 42

2:30-4:30 Imaging, Computation and Inverse Methods in Biomedicine

Session Organizers: Michele Piana and Serguei Semenov

Session Chairs: Michele Piana and Serguei Semenov

2:30-2:50 "The Linear Sampling Method, a New Regularized Solution and Real Data"
R. Aramini, M. Brignone, and J. Coyle

2:50-3:10 "An Inverse Scattering Problem for a Partially Coated Buried Obstacle"
Michele Di Cristo and Jiguang Sun

3:10-3:30 "On Recent Machine Learning Algorithms for Brain Activity Interpretation"
Marco Prato, Luca Zanni, and Gaetano Zanghirati

3:30-3:50 "Applications of a No-Sampling Approach to the Linear Sampling Method"
R. Aramini, M. Brignone, and M. Piana

3:50-4:10 "Microwave Imaging for Early Breast Cancer Detection using a Shape-Based Strategy"
Natalia Irishina, Miguel Moscoso, and Oliver Dorn

4:10-4:30 "Microwave Tomographic Approach for Extremities Imaging. Formulation of the Problem and Initial Imaging"
Serguei Y. Semenov, James F. Kellam, Peter Althausen, Thomas C. Williams, Aria Abubakar, Alexander Bulyshev, and Yuri Sizov

Room: **Nabucco 1 Atto**

Session 43

2:30-4:30 Microwave, Optical Devices, and Propagation

Session Organizer: Rodica Ramer

Session Chair: Rodica Ramer

2:30-2:50 "V Transmission Lines Frequency Operation Band"
Payam Nayeri, Ahmed Cheldavi, and Farshad Keshmiri

2:50-3:10 "Subwavelength Metallic Grating Simulation using FDTD"
Saswatee Banerjee, Tetsuya Hoshino, and James B. Cole

3:10-3:30 "Geometrical and Statistical Properties of the Scattering Area in Multipath Propagation Modeling"
Mohammed T. Simsim, Noor M. Khan, and Rodica Ramer

3:30-3:50 "Interval-based robust design of a microwave power transistor"
P. Lamberti and V. Tucci

Conference Venu

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