

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE 1998		3. REPORT TYPE AND DATES COVERED Advanced Program 13 - 17 July 1998
4. TITLE AND SUBTITLE Progress in Electromagnetics Research Symposium (PIERS 1998) Advance Program				5. FUNDING NUMBERS N00014-98-1-1034
6. AUTHOR(S) Pr. A. Priou				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Institute of Technology University of Paris X 1 Chemin Desvallieres 92410 Ville d'Avray, France				8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Technical Director Office of Naval Research International Field Office PSC 802 Box 39 FPO AE 09499-0700				10. SPONSORING/MONITORING AGENCY REPORT NUMBER
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION AVAILABILITY STATEMENT Approved for public release, distribution is unlimited				12b. DISTRIBUTION CODE
13. ABSTRACT (Maximum 200 words) Advance Program of the conference entitled "Progress in Electromagnetics Research Symposium (PIERS 1998) held in Nantes, France, 13 - 17 July 1998				
14. SUBJECT TERMS Electromagnetics, antennas, wavefield, remote sensing, OPOL-SAR, scattering, polarimetry, interferometry				15. NUMBER OF PAGES
				16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT	

PIERS 1998

Progress In Electromagnetics Research Symposium

ADVANCE PROGRAM

July 13-17, 1998
Nantes, France

19980824 023

Organised by
The Electromagnetics Academy
IRESTE, Université de Nantes
CESBIO, CNES-CNRS-Université Paul Sabatier, Toulouse
Institut Universitaire de Technologie, Université de Paris X

PIERS 1998

Progress In Electromagnetics Research Symposium

We wish to thank :

Conseil Régional des Pays de la Loire

Conseil Général du Département de Loire-Atlantique

Mairie de Nantes

DGA/DSP/SREA

France Telecom

Air France

Université de Paris X

IRESTE-Université de Nantes

CESBIO, CNES-CNRS-Université Paul Sabatier, Toulouse

European Commission : JRC and DG XII

NATO, Scientific and Environmental Affairs Division

United States Offices of Naval Research, Europe

United States Air Force European Office of Aerospace Research and Development

United States Army Research Development and Standardization Group (U. K.)

IEEE and French chapter of IEEE-MTT-ED

URSI

for their contribution to the success of this symposium.

For additional information, please contact :

Dr T. Le Toan,

*CESBIO, BP1 2801
18 avenue E. Belin
31401 Toulouse cedex 4, France
Fax : 33.5.61.55.85.00,
e-mail : thuy.letuan@cesbio.cnes.fr*

Professor J. Saillard,

*IRESTE
rue Christian Pauc, La Chantreterie, BP 60601
44306 Nantes Cedex 3, France
Fax : 33.2.40.68.32.33,
e-mail : jsaillard@ireste.fr*

Professor A. Priou,

*Institute of Technology, University of Paris X
1 chemin des Desvallières
92410 Ville d'Avray, France
Fax : 33.1.47.09.63.97,
e-mail : alain.priou@cva.u-paris.fr or director@cva.u-paris.fr*

Updated information will be posted on the World Wide Web at <http://www.piers.org>

Contents

➤ GENERAL INFORMATION	6
➤ TECHNICAL PROGRAM SUMMARY	7
➤ ORGANISATION	10
➤ SYMPOSIUM SITE AND OFFICE LOCATION	13
➤ REGISTRATION AND FEES	13
➤ PIERS ON-LINE	14
➤ SYMPOSIUM ABSTRACTS BOOK	14
➤ PROJECTION FACILITIES	14
➤ SOCIAL EVENTS	14
➤ ACCOMMODATIONS	17
➤ TRANSPORTATION	18
➤ PIERS TECHNICAL PROGRAM	19
➤ PIERS 1998 REGISTRATION FORM	103

GENERAL INFORMATION

European Electromagnetics Events

12 Days on Electromagnetics

Several events, from July 10 to July 22, 1998, will be organised in European Countries on Electromagnetics.

International Workshop on Finite Elements for Microwave Engineering : from Electromagnetics to Microwave Electronics Software - July 10, 11, Poitiers Futuroscope, France.

Contact :

*FEM Poitiers 98,
IRCOM, University of Limoges,
123 rue Albert Thomas,
87060 Limoges Cedex, France,
Fax : 33.5.55.45.75.14,
e-mail : dir@ircom.unilim.fr, <http://infig9.die.unifi.it/poitiers>*

PIERS (Progress In Electromagnetics Research Symposium) 1998, 13-17 July 1998, Nantes, France.

Contact :

*Dr T. Le Toan,
CESBIO,
18 avenue E. Belin, BP 2801,
31055 Toulouse Cedex, France
Fax : 33.5.61.55.85.00
<http://www.ireste.fr/piers98>*

The 4th International Workshop on Radar Polarimetry (J. I. P. R. 4) included in PIERS Symposium

Contact :

*Pr J. Saillard and Dr E. Pottier,
IRESTE - University of Nantes,
Rue Christian Pauc, La Chantrerie
44306 Nantes Cedex 3, France
Fax : 33.2.40.68.32.33
e-mail : jsaillar@ireste.fr, epottier@ireste.fr*

Workshop on Complex Media and Measurement Techniques : Organised by the Electromagnetics Academy with the support of the European Commission JRC, DG XII, included in Topic 6 and Topic 11-3 of PIERS 1998

Contacts :

*Pr A. Priou,
Institute of Technology,
University of Paris X,
1 Chemin Desvallières
92410 Ville d'Avray, France
Fax : 33.1.47.09.63.97
e-mail : Alain.PRIOU@cva.u-paris10.fr*

*Pr J. P. Parneix,
Director of PIOM,
ENSCP,
108 Avenue Pey Berland
33402 Talence, France
Fax : 33.5.56.84.66.31
e-mail : jp.parneix@piom.u-bordeaux.fr*

*Pr A. Sihvola,
Helsinki University of Technology,
EM Laboratory,
HUT BP 3000
ESP00, 02015 HUT, Finland*

PIERS Workshop on Advances in Radar Methods - 20-22 July 1998, Baveno, Italy.

Contact :

*Dr A. Franchois,
Space Applications Institute,
Joint Research Center of the European Commission,
I - 21020 Ispra (VA), Italy
Fax : (39) 332.78.57.72
<http://www.sai.jrc.it/piers.aviram>*

TECHNICAL PROGRAM SUMMARY

MONDAY, JULY 13, AM

WELCOME AND OPENING CEREMONY

MONDAY, JULY 13, PM

Session A01	Rough Surface and Related Problems
Session B01	Mathematical Methods for Inverse Scattering Problems
Session C01	Time Domain Methods I
Session D01	Time Domain Methods II
Session E01	Neural Network Techniques in Electromagnetics
Session F01	Microstrip and Resonator Antennas
Session G01	Microwave Phase Shifters, Circulators and Attenuators
Session G02	Millimeter Wave Device and Systems
Session H01	Composite Materials I
Session I01	Basic Polarimetry Theory and Applications
Session J01	Remote Sensing in European Union Projects
Session K01	Remote Sensing of Atmosphere
Session L12	Sensors : Radar and Radiometer I
Session L01	Antenna Arrays in Mobile Communications
Session M01	Material Measurements I

TUESDAY, JULY 14, AM

Session A02	RCS Models of Large and Complex Structures and Validation
Session B02	Tasks and Trends in Electromagnetic/ Elastic/Wavefield Inversion
Session C02	New and Efficient Methods for Computational Electromagnetics
Session D02	Computational Workshop
Session N01	Antenna Arrays in Mobile Communications Workshop
Session E02	Wavelets in Electromagnetics
Session F02	Microstrip Antennas and Planar Antennas
Session G03	Solitons and Non-Linear Optical Fiber Transmission
Session G04	Microwave Components I
Session H02	Composite Materials Modeling I
Session I02	Basic Polarimetry Concepts and Applications
Session J02	Microwave Scattering from Rough Surfaces
Session K02	Oblique Incidence Ionospheric Sounding Theory and Observations
Session L02	Biological Effects I
Session M02	Near Field 1 : From Microwaves to Optics

TUESDAY, JULY 14, PM

Session A03	Scattering and Diffraction of Electromagnetic Waves
Session B03	Electromagnetic Inverse Scattering Problems
Session C03	Advanced Techniques for Absorbing Boundaries in Computational Electromagnetics
Session D03	Novels Mathematical Methods in Electromagnetics
Session E03	Genetic Algorithm and Optimization
Session F03	Aperture Antennas
Session G05	Passive and Active Optical Waveguides
Session G06	Electrodynamics of High Tc Superconductors
Session H03	Composite Materials Modeling II
Session I03	POL-SAR Image Processing
Session J03	Microwave Remote Sensing of Snow and Ice
Session K03	Remote Sensing of Natural Media
Session L03	Biological Effects II
Session L04	Wireless Sensor and Communications Techniques I
Session M03	Near Field 2 : Near Field Optics

WEDNESDAY, JULY 15, AM

Session A04	Monte Carlo Methods for Propagation and Scattering Natural Media
Session A05	Surface Scattering Theory
Session B04	Non Linear Inversion : Algorithms and Applications
Session C04	Selected topics in Computational Electromagnetics
Session D04	Numerical Thechniques
Session E04	Coplanar Techniques
Session E05	Developments in the Area of the Calculations of Guided Waves and Propagation
Session E06	Packaging
Session F04	Array Antennas
Session G07	Microwave Components II
Session G08	Photonic Band Structures I
Session H04	Recent Advances on Complex Materials and Related Applications
Session I04	Ultrawideband (VHF-UHF) Polarimetry
Session J08	Forest Observations by Radars : The Eufora Project
Session K04	SAR Interferometry : Signal Processing and Phase Unwrapping
Session L05	Local Area Network
Session M04	Near Field 3 : Field Measurements via the Modulated Scattering Technique (MST)

WEDNESDAY, JULY 15, PM

Session A06	Asymptotic High Frequency Techniques
Session A07	Rough Surface Scattering Methods and Applications
Session B05	Microwave Imaging and Dielectric Reconstruction Techniques
Session C05	Parallel computation
Session D05	Asymptotic Methods
Session E07	Global Modeling of Millimeter-Wave Circuits I
Session E08	Global Modeling of Millimeter-Wave Circuits II
Session F05	Active and Phased Array Antennas
Session G08	Photonic Band Structures II
Session G09	Superconducting Devices : From Gigahertz to Terahertz Technologies
Session H05	Composite Materials II
Session I05	Polarimetry in Multisensor Signature Fusion
Session J05	Dielectric Characteristics of Geophysical Media
Session J06	Microwave Remote Sensing of Crops
Session K05	Interferometry
Session L06	Wireless Sensor and Communications Techniques II
Session M05	Near Field 4 : RF/Microwave NF Techniques

THURSDAY, JULY 16, AM

Session A08	Coherent Effects in Random Media I
Session B06	Shape Reconstruction and Object Identification
Session C06	Hybrid Methods in Electromagnetism
Session D06	Iterative Methods in Scattering
Session E09	Domain decomposition, Segmentation and Hybridization Methods for Modeling Microwave Structures
Session F08	Conformal and Smart Microstrip Antennas
Session G10	Optical Interconnections in Electronic Systems : Design and Realization I
Session G11	Photonic Crystals : from Microwave to Optics I
Session H06	Chiral Media
Session I08	Polarimetric Signal Processing
Session J07	Polarimetry, Interferometry and their Combination for Vegetation Studies
Session K06	Microwave Propagation in Tropical Regions
Session L07	Indoor Propagation
Session M06	Medical Applications

THURSDAY, JULY 16, PM

Session A08	Coherent Effects in Random Media II
Session B07	Detection and/or Imaging of Buried Objects
Session C07	Advances Techniques in TLM Field Computation
Session D07	Hybrid Methods
Session E10	Discontinuities
Session F07	Conformal and Smart Skin Antennas
Session G11	Photonic Crystals : from Microwave to Optics II
Session G12	Superconducting Devices : Modeling and Design
Session H07	Scattering by Complex Structures - Novel Application I
Session H08	Scattering by Complex Structures - Novel Application II
Session I06	Polarimetric Diffraction and Scattering and Applications
Session I07	Plenary Session and Panel discussion
Session J04	Scattering from Natural Bare Soils
Session J09	Radar Remote Sensing of Forests
Session K07	Propagation Effects and Models
Session L08	Frontiers of Electromagnetics Research
Session M07	Material Measurements II

FRIDAY, JULY 17, AM

Session A09	Scattering I
Session A10	Structure Complex
Session B08	Inverse Scattering Problems : Biomedical Applications
Session C08	Frequency Domain Methods
Session D08	Computational Electromagnetics in EMC Applications
Session E11	Transmission Lines
Session F06	Conformal Antennas and Arrays
Session G13	Microwave Components III
Session G14	Optical Interconnections in Electronic Systems : Design and Realization II
Session H09	Modeling Design of Millimeter Wave Antennas
Session H10	Dipole and Wire Antennas
Session I09	Joint EC-CIS Polarimetric Radar projects
Session J10	Classification of Synthetic Aperture Radar Images
Session K08	Parabolic Equation Techniques for Wave Propagation
Session L10	CEM
Session L11	Educational Electromagnetics
Session M08	Dielectric Measurements on Low Loss Crystals

FRIDAY, JULY 17, PM

Session A11	Diffraction and Electromagnetics Waves
Session A12	Electromagnetic Formulation
Session B09	Scattering II
Session C09	The Methods of Lines for Computational Electromagnetics
Session D09	Advanced Topics in FDTD
Session E12	Signal Processing
Session F09	Antennas for Mobile Communication Systems
Session G15	Microwave Components IV
Session H11	Antennas and Signal Processing
Session I10	Recent Russian CIS Contributions to Radar Polarimetry
Session J11	VHF Band SAR
Session K09	Indoor and Outdoor Propagation
Session K10	Sensors : Radar and Radiometer II
Session L09	Electromagnetic Compatibility and Interference Problems
Session M09	Short Range Microwave Applications

Updated information will be posted on the World Wide Web at <http://www.piers.org>

PIERS 1998

**Progress in Electromagnetics Research Symposium
July 13-17, 1998
Nantes, France**

**Organised by
The Electromagnetics Academy, French Chapter
IRESTE, University of Nantes
CESBIO Toulouse
Institute of Technology, University of Paris X, France**

ORGANISATION

PIERS 1998 STEERING COMMITTEE

PIERS Chairman

Jin Au Kong
Massachusetts Institute of Technology

PIERS 1998 General Chairman

Alain Priou
University of Paris X, Institute of Technology

PIERS 1998 Technical Chairman

Thuy Le Toan
CESBIO Toulouse

PIERS 1998 International Steering Committee :

Chairman : Joseph Saillard, IRESTE, University of Nantes
Bertram Arbesser-Rastburg, ESA ; Wolfgang-Martin Boerner, VIC-EECS/CSN ;
Kun-Shan Chen, National Central University ; Leopold Felsen, Boston University ; Tatsuo Itoh, UCLA ;
Akira Ishimaru, Seattle University ; Thuy Le Toan, CESBIO ; Wolfgang Keydel, DLR ;
Jin Au Kong, MIT ; Leonardo S. Mendes, DECOM/FEE/UNICAMP ; Juan R. Mosig, EPFL ;
Ross McPhedran, University of Sydney ; Paolo Pampaloni, CNR - IROE ; Alain Priou, University of Paris X ;
Shaun Quegan, University of Sheffield ; Jung-Wong Ra, Korea Advanced Institute of Science and Technology ;
Helmut Rott, I.M.G.I. ; Ari Sihvola, University of Helsinki ; Roberto Sorrentino, Istituti di Elettronica ;
Sergei A. Tretyakov, University of St Peterburg ; Jakob Van Zyl, JPL and Rudolf Winter, JRC.

PIERS 1998 French Steering Committee :

Chairman : Thuy Le Toan, CESBIO, CNES-CNRS-University P. Sabatier, Toulouse
Pierre Bauer, CESBIO ; Louis Bertel, University of Rennes 1 ; Victor Fouad Hanna, CNET ;
Pierre Guillon, ICOM ; Patrick Kennis, IEMN ; Ahmed Mamouni, IEMN ; Michel Ney, ENSTBr ;
Albert Papiernik, University of Nice Sophia-Antipolis ; Jean-Paul Parneix, ENSCPB ; Eric Pottier, IRESTE ;
Alain Priou, University of Paris X ; Christian Rumelhard, CNAM ; Joseph Saillard, IRESTE ;
Walid Tabbara, SUPELEC ; Claude Terret, University of Rennes 1.

PIERS 1998 Finance Committee

Alain Priou, University of Paris X, Chairman
Christine Marcou, Cité des Congrès
Joseph Saillard, IRESTE
Thuy Le Toan, CESBIO

PIERS 1998 ORGANISING COMMITTEE

Christine Marcou
Thuy Le Toan

Joseph Saillard
Eric Pottier

Fabien Dupuis
Julien Berger

Alain Priou
Sophie Brodu

PIERS 1998 EXECUTIVE COMMITTEE

Alain Priou

Thuy Le Toan

Joseph Saillard

Eric Pottier

PIERS 1998 TECHNICAL PROGRAM COMMITTEE

Technical Chairman : Thuy Le Toan

Arbesser-Rastburg Bertram
Bauer Pierre
Bertel Louis
Boerner Wolfgang-Martin
Chen Kun-Shan
Felsen Leopold
Fouad Hanna Victor
Guillon Pierre
Ishimaru Akira
Itoh Tatsuo
Kennis Patrick
Keydel Wolfgang

Kong Jin Au
Mamouni Ahmed
McPhedran Ross
Mendes Leonardo
Mosig Juan
Ney Michel
Pampaloni Paolo
Papiernik Albert
Parneix Jean-Paul
Pottier Eric
Priou Alain
Quegan Shaun

Ra Jung-Woong
Rott Helmut
Rumelhard Christian
Saillard Joseph
Sihvola Ari
Sorrentino Roberto
Tabbara Walid
Terret Claude
Tretyakov Sergei
Van Zyl Jakob
Winter Rudolf

SESSION ORGANISERS

Aberle James T.
Alquié Georges
Baker-Jarvis James
Bamler Richard
Baudrand Henri
Beniguel Yves
Berenger Jean-Pierre
Berginc Gerard
Bertel Louis
Beyer Adalbert
Biebl Erwin M.
Bedard Alfred
Boerner Wolfgang-Martin
Bolomey Jean-Charles
Bruscaglioni Piero
Cander Ljiljana R.
Chen Kun-Shan
Christopoulos Christos
Chuah H. T.
Caorsi Salvatore

Combes Paul
Cory Haim
Duret Gilles
El-Ghazaly Samir M.
Ferrazzoli Paolo
Fouad Hanna Victor
Frelikher Valentin
Gardiol Fred
Gelin Philippe
Godara Lal
Greffet Jean-Jacques
Griese Elmar
Guillon Pierre
Hallikainen Martti
Harvey J.
Helier Marc
Itoh Tatsuo
Jecko Bernard
Jeulin Dominique
Jofre L.

Kaklamani Dimitra I.
Kemptner Erich
Kim Se-Yun
Kozlov Anatoli I.
Kreisler Alain
Krogager Ernest
Le Toan Thuy
Lee Jong Sen
Lee Kai-Fong
Leroy Yves
Lesselier Dominique
Levy Mireille
Lightart Leo
Lindenmeier Stefan
Lourtioz Jean-Michel
Mametsa José
Mamouni Ahmed
Maradudin Alexi A.
Mattia Francesco
Maystre Daniel

Moghaddam Mahta
Molinet Frederic
Mosig Juan R.
Pampaloni Paolo
Pasher Wilfrid
Pichon Lionel
Pichot Christian
Picon Odile
Pierdicca Nazzareno
Pierri Rocco
Pottier Eric
Pregla Reinhold
Priou Alain
Quegan Shaun
Razek Alain
Rius Juan Manuel

Roederer Antoine
Rott Helmut
Saillard Marc
Sarkar Tapan K.
Shafai Lot
Shestopalov Yiouri V.
Skrivervik A.
Skulkin Sergey
Solimini Domenico
Sombrin Jacques
Springer Andreas
Srivastava G. P.
Stamatakis George S.
Tabbara Walid
Taflove Allen
Tayeb Gerard

Thurai Merhala
Treuhart R.
Ulander Lars
Unrau Udo
Vegni Lucio
Vendik Irina
Veyret Bernard
Vigneras Valerie
Vu T. Bao
Wanielik Gerd
Weigel Robert
Wiart Joe
Wong Man-Fai
Yamagushi Yoshio
Yanovsky Felix

SYMPOSIUM SITE AND OFFICE LOCATION

The PIERS' 1998 will be held July 13-17 at the Cité des Congrès, Nantes - France. This congress center is a modern and attractive building, situated in the city center of Nantes, near all facilities and entertainments.

*During the symposium, the PIERS office will be at the Cité des Congrès :
Phone : 33 2 51 88 20 00 ; Fax : 33 2 51 88 20 20*

July in Nantes is usually mild and sunny, with temperatures ranging from 20°C to 25°C. However, a light raincoat is recommended.

=> Visas

Foreign delegates (except residents of EC countries and Switzerland) should enquire at least 3 months prior to the Symposium to their nearest Embassy or Consulate whether a visa is required.

=> Lunches

Advance registration for lunches are strongly recommended. The lunch organisation requires advance notice of the number of attendees.

A limited number of tickets will be available on the conference site at the cost of 120 FRF each.

=> Registration desk

The conference registration desk, located in the Cité des Congrès, will open on Sunday, 12 July, from 5:00 p.m. to 8:00 p.m. It will reopen on Monday morning beginning at 8:00 a.m. The registration desk will be staffed through-out the conference to provide information and assistance to participants and their guests.

REGISTRATION AND FEES

Advance registration for the Progress in Electromagnetic Research Symposium and the related social events is recommended. To register, please complete the Symposium registration form and return it by 15 May, 1998, to take advantage of the lower early registration fees.

Fees in French Francs must accompany your registration and payment can be made by cheque, Eurocheque, bank transfer or credit card (VISA, Mastercard or EUROCARD only).

Mail your registration form and fees to :

**Cité des Congrès de Nantes
PIERS 1998 Registration
5 Rue de Valmy
BP 24102
44041 NANTES Cedex 01**

If paying by credit card, registration may be made by telefax to 33 (2) 51 88 22 91. Valid Mastercard, VISA ou EUROCARD credit card numbers with name as it appears on the card and expiration date noted must be included with all faxed registrations.

If paying by bank transfer, please add 120 FRF to the registration fees, in order to cover the international banking fees.

IF YOU ARE A PRE-REGISTERED, PRESENTING AUTHOR

you may still wish to register for some of the social events. Please indicate on the registration form that you are pre-registered by checking the appropriate box and then indicate which additional events you would like to attend. Your payment must accompany the registration form.

REGISTRATION FEES

The registration fee for all participants, including chair persons and authors is :

	<i>Before 15 May 1998</i>	<i>After 15 May 1998</i>
Conference Registration	1800,00 FRF	2200,00 FRF

Participant registration fees include symposium materials, attendance to all technical sessions, welcome cocktail, refreshment breaks, and one copy of the abstracts book.

CANCELLATION POLICY

Each cancellation received by mail or telefax before 15 June 1998 will allow a refund of :

- The registration fees, minus 500 FRF per person for administrative costs.
- The hotel deposit, minus 100 FRF per room for administrative costs.

After 15 June 1998, no refund can be made.

PIERS ON-LINE

Updated information will be posted on the World Wide Web at «<http://www.piers.org>».

SYMPOSIUM ABSTRACTS BOOK

Additional copies of the PIERS 1998 abstracts book may be purchased from conference staff in the PIERS Office at the Cité des Congrès during the symposium.

PROJECTION FACILITIES

Projection equipment available in each meeting room will be standard 35 mm slide (carousel type) and overhead projectors.

SOCIAL EVENTS

For PIERS 1998 a variety of optional activities have been planned for your enjoyment. The starting times given for events with transportation provided are bus departure times. All full-day excursions include lunch.

If you preregister, tickets will be included in your registration package. Preregistration for you and your accompanying person is strongly encouraged for all social events. Some activities have limited space and some require advance notice of the number of attendees. Please preregister for social events on the registration form.

The Organisers reserve the right to cancel any tour or event if minimum enrollment is not met.

GALA DINNER

Wednesday, 15 July

from 7.30 pm to midnight Price : 200,00 FRF

Le Château de la Poterie on the Erdre's Riverside

The time of a short cruise between the Cité des Congrès and le Chateau de la Poterie, you will enjoy the discovery of the Erdre river...

The most beautiful French river according to King François the 1st, is a genuine treasure of Mother nature. Its banks in bloom, mingling with the mansions and castles offer an exceptional show.

Then, discover le Chateau de la Poterie where the gala dinner will take place... Located on the Erdre's riverside, this nice castle has been built near the city of Nantes on the 18th century by Ceineray's Architect.

In its vast, spacious park, in the shade of Century-old-trees, le Chateau de la Poterie welcomes you with elegant reception lounges. It's authentic setting, the charm of the surroundings and the calmness of its stones, steeped in history and comfort of today, will assuredly seduce you.

Preregistration for you and your accompanying person is strongly encouraged.

MONT SAINT MICHEL TOUR

Thursday, 16 July

one day tour from 9 am to 7 pm, with de luxe coach,
a registered guide, entrance fees, and lunch Price : 370,00 FRF

Thanks to its superb setting and wonderful architecture, Mont Saint Michel, the "Wonder of the Western World", is one of the most popular tourist venues in France. The rocky island has a circumference of just over half-a-mile and rises to a height of 260 ft. It is connected to the mainland by a dyke built in 1879 that is never covered by the sea. In the 20th century, Mont Saint Michel has been upholding its age-old traditions of a warm welcome and accommodation for travellers. During the highest tides, twice a month, the ebb and flow are a splendid sight, and the bay boasts the strongest tides in Europe.

In the 11th century, the romanesque Abbey was built over a succession of crypts on the very top of the island and the early monastery buildings were erected along the North face of the rock. 2 centuries later, King Philip Augustus of France made a donation to the abbey after conquering Normandy. It was his gift that enabled the "Marvel" to be built, two three-storey buildings topped by the cloisters and refectory. Later, the abbey was protected by a defensive system. The major period of construction of the abbey is from 11th to 16th centuries.

WALKING TOUR OF NANTES

Friday, 17 July

half-day tour (9 am - 12 am) Price : 70,00 FRF

Visit the Cathedral Saint Pierre, a flamboyant and impressive masterpiece of gothic architecture, that shelters the tombs of the last Duke of Brittany.

Then, visit the castle of the Duke of Brittany, one of the last medieval buildings still standing on the banks of the river Loire.

You will then tour the town following its chronological growth throughout the ages and discover great monuments such as the Passage Pommeraye, Graslin Theatre, Feydeau Island...

GUIDED TOUR OF GRAVES AND VINEYARD

Friday, 17 July

half-day tour (2 pm - 6 pm) Price : 190,00 FRF

Take the tourist route through the vineyard : Vertou, Saint Fiacre, La Haye Fouassière, Le Pallet, stop at the "Chaussée des Moines". Then discover Clisson and its impressive medieval castle on the banks of the Sèvres and the Moine. Stroll in the old streets : the covered market, the viaduc... You will visit afterwards "La Garenne Lemot", an italian-like villa built like a classical landscape painting. It is the result of numerous architectural inspirations : Italian with the gardener house, neo-classical with the villa Lemot, antique with the temples, columns and statues which give the park its so particular charm.

The tour will end with the tasting of Muscadet wine during the visit of the castle of Goulaine and the discovery of its tropical butterflies farm.

CASTLES OF THE LOIRE VALLEY TOUR

Saturday, 18 July

one day tour from 9 am to 8 pm, with de luxe coach,
a registered guide, entrance fees, and lunch. Price : 480,00 FRF

SERRANT

Inside all arts are to be seen : tapestries, paintings, rare furniture and specially a magnificent bookcase.

BRISSAC

The highest of all the royal castles, Brissac is built on 7 levels. Here all is amazing : the ceiling painted with "gold leaf", the tapestries, the furnitures and even a theatre where the woody columns are lightened by centre lights in crystal of Venice.

Crossing through SAUMUR along the river Loire.

The Saumur castle stands up on a small hill. Its fortification was extended during the civil wars of the XVIIth century, as a "protestant fortress".

Lunch at the Prieuré Saint Lazare in the FONTEVRAUD Abbey.

USSE

Ussé was built in the 15th century on the edge of the Chinon forest, on the site of a fortress overlooking the river Indre. Its surprising architecture inspired Charles Perreault who wrote "Sleeping Beauty".

AZAY-LE-RIDEAU

This castle is a jewel, one of the first Renaissance castles. The financier, Gilles Berthelot, who worked for King François I, built his new residence on an island in the Indre river.

VILLANDRY

Built in 1536 between the Cher and the Loire, Villandry is one of the first major castles, illustrating French style architecture. In the early 20th century, a spanish scholar, Joachim Carvallo, dedicated his life to its restoration and recreated its magnificent Renaissance gardens including the decorative vegetable garden.

LANGEAIS

On the border between Anjou and Touraine, King Louis XI built the fortress of Langeais to protect Tours from an attack by the Duke of Brittany. This was where Charles VIII married Anne de Bretagne in 1491. In the late 19th century, its enthusiastic owner decorated the castle and furnished it with exceptional tapestries and works of art. From the terraced gardens, one can admire the roofs of the old town.

ACCOMMODATIONS

HOTEL ACCOMMODATIONS

Reservations will not be accepted by telephone.

Only a limited number of rooms are available and early reservations are strongly advised.

No reservation will be handled without the registration form duly completed and accompanied with the relevant payment (a one-night deposit + 50 FRF handling charge).

The balance of your reservation will have to be paid directly to the hotel upon check-out.

Information on local accommodations

- the first choice : category A

The chosen hotels in this category offer very modern convenience and a limited number of rooms (100 to 130 rooms max.) , restaurant, bar, private car park, room service and breakfast with a buffet. These hotels also offer spacious air conditioned and soundproofed guest rooms, with minibar, private bathroom, direct dial phone, colour TV with cable TV network.

- the second choice : category B

These hotels also offer a good comfort : bar, room-service (only for breakfast). The rooms are sometimes smaller but still comfortable with a private bathroom, direct dial phone and TV. Regarding the car park, please see the information below-mentioned**.

- the third choice : category C

The comfort of those hotels is very similar to the 3* traditional hotels. A few differences : there is no minibar and sometimes the bathroom is replaced by a shower room, also the breakfast can be only continental, but can be served in the room too. Direct dial phone and TV set are still included.

Regarding the parking, please see the information below-mentioned**.

- the fourth choice : category D

These hotels are simple and basic : the room offers a private shower room and toilets, and sometimes a bathroom and a TV. The continental breakfast is served in the dining-room. There is no restaurant and no bar.

Regarding the car park, please see the information below-mentioned**.

** Information about car park facilities : some of these hotels have a private car-park. Nevertheless, it is easy to park your car in the nearest public car park of the city with special rates as a guest of the hotel.

LOW-COST ACCOMMODATION

A few rooms in students or workers accommodation centers are available nearby the Cité des Congrès de Nantes.

For any further information, or reservation, from 15 June 1998, please contact :

Foyer Port Beaulieu - 9 Boulevard Vincent Gâche - 44200 NANTES

Tel. 33 (0) 2 40 12 24 00

Fax 33 (0) 2 51 82 00 05

TRANSPORTATION

* BY PLANE

The recommended airport is Nantes-Atlantique International Airport, with several daily flights Sunday to Friday of the main Airline Companies, departing from most European capitals and several other major foreign cities.

Airport information : 33 (0) 2 40 84 80 00 (AIR FRANCE is Official Carrier)

Please note that a TAN AIR coach shuttle runs every 30 minutes from Nantes Atlantique airport to downtown Nantes ("gare SNCF" stop near the Cité des Congrès - transit time 20 minutes). The timetable and the tickets are available at the Nantes Atlantique airport.

* BY TRAIN

Direct daily TGV's (High speed trains) depart regularly from Paris- Montparnasse Station (approximately 15 trains a day) and from Charles de Gaulle Airport Station (3 trains a day) to Nantes.

Total travel time from Montparnasse Station : 2 hours.

Total travel time from Charles de Gaulle Airport : 3 hours.

Reservation is mandatory for TGV

For information and reservation, please call : SNCF - 33 (0) 8 36 35 35 35

* BY CAR

From Paris, highway A6 (direction Lyon) to "Porte d'Orléans", then highway A10 towards Chartres, A11 from Chartres towards Le Mans, Angers and Nantes.
Travel time : 3 1/2 hours.

The Cité des Congrès de Nantes is located downtown Nantes, along the Loire River, across the railway station.

For car rental, please contact EUROPCAR INTERRENT directly :

EUROPCAR INTERRENT

Nantes South Station

Tel. 33 (0) 2 40 47 19 38

Fax 33 (0) 2 40 47 19 05

Nantes Atlantique Airport

Tel. 33 (0) 2 40 84 81 05

Fax 33 (0) 2 40 84 82 69

TRAVEL INFORMATION

The Congress delegates may benefit from special discount on AIR FRANCE round-trip flights (up to 60% off depending on the schedules) and on round-trip rail journeys within France (SNCF - 20% off).

Air France has been designated Official Carrier. We suggest you contact your nearest Air France Office, for special rates for this event on presentation of your registration confirmation or entrance card. On the Air France domestic network, a special discount of up to 50 % is applicable for tickets purchased in France.

The discount coupons are mailed upon request by the Secretariat, together with the confirmation of your registration to the Symposium.

PIERS TECHNICAL PROGRAM

Monday, July 13 AM

WELCOME AND OPENING CEREMONY

Session A01

Monday, July 13 PM

Rough Surface Scattering And Related Problems

Organiser : A. A. Maradudin

Chairs : A. A. Maradudin, E.R. Mendez

- A01:01** *Banded method of ordered multiple interaction for the scattering of EM waves from a rough surface*
P. Tran, Computational Science Branch, Research and Technology Group, Naval Air Warfare Center Weapons Division, China Lake, California, USA
- A01:02** *Backscattering by multiscale surfaces at grazing angles of incidence*
R. Hernández-Walls, E. R. Méndez, Division de Física Aplicada, Centro de Investigación Científica y de Educación Superior de Ensenada, Ensenada, Mexico; A. A. Maradudin, Dpt. of Physics and Astronomy and Inst. for Surface and Interface Science, U. of California, Irvine, California, USA
- A01:03** *Scattering from randomly rough metal surfaces : SERS electromagnetic mechanism*
J. A. Sánchez-Gil, J. V. García-Ramos, Inst. de Estructura de la Materia, C.S.I.C., Madrid, Spain ; E. R. Méndez, Division de Física Aplicada, Centro de Investigación Científica y de Educación Superior de Ensenada, Ensenada, Mexico
- A01:04** *Scattering of light from one-dimensional random surfaces formed from resonant scatterers*
T. A. Leskova, Inst. Spectroscopy, Russian Academy of Sci., Troitsk, Russia; A. A. Maradudin, A. V. Shchegrov, Dpt. of Physics and Astronomy and Inst. for Surface and Interface Science, U. of California, Irvine, California, USA; Jun. Q. Lu, Dpt. of Physics, East Carolina U., Greenville, North Carolina, USA; E. R. Méndez, División de Física Aplicada, Centro de Investigación Científica y de Educación Superior de Ensenada, Ensenada, Mexico
- A01:05** *Surface plasmon polaritons in light scattering from a random rough thin metal film on a substrate*
Jun Q. Lu, Dpt. of Physics, East Carolina U., Greenville, North Carolina, USA ; A. A. Maradudin, Dpt. of Physics and Astronomy and Inst. for Surface and Interface Sci., U. of California, Irvine, California, USA
- A01:06** *Second harmonic generation in the scattering of light from and its transmission through a random metal film in the Kretschmann ATR geometry*
I.V. Novikov, A. A. Maradudin, Dpt. of Physics and Astronomy, and Inst. for Surface and Interface Science, U. of California, Irvine, California, USA; T. A. Leskova, Inst. Spectroscopy, Russian Academy of Sci., Troitsk, Russia; E. R. Méndez, División de Física Aplicada, Centro de Investigación Científica y de Educación Superior de Ensenada, Ensenada, Mexico
- A01:07** *Speckle correlations in the second harmonic generation of light in reflection from a randomly rough metal surface*
M. Leyva-Lucero, E. R. Méndez, División de Física Aplicada, Centro de Investigación Científica y de Educación Superior de Ensenada, Ensenada, Mexico; T. A. Leskova, A. A. Maradudin, Dpt. of Physics and Astronomy and Inst. for Surface and Interface Science, U. of California, Irvine, California, USA
- A01:08** *Detection of a small defect on top of and underneath a rough surface*
Zu-Han Gu, Surface Optics Corporation, San Diego, California, USA ; M. Josse, CEA/CESTA, Le Barp, France
- A01:09** *Computer simulation studies of speckle correlations in the light scattered from volume disordered dielectric media*
A. R. McGurn, Dpt. of Physics, Western Michigan U., Kalamazoo, Michigan, USA; A. A. Maradudin, Dpt. of Physics and Astronomy, and Inst. for Surface and Interface Science, U. of California, Irvine, California, USA
- A01:10** *Signatures of electromagnetic surface shape resonances in scattering of pulsed beams from surface defects*
A. V. Shchegrov, A. A. Maradudin, Dpt. of Physics and Astronomy and Inst. for Surface and Interface Science, U. of California, Irvine, California, USA

- A01:11** *Polarization measurements of the light scattered by isotropic dielectric randomly rough surfaces*
E.I. Chaikina, G. Martinez-Niconoff, E. R. Méndez, División de Física Aplicada, Centro de Investigación Científica y de Educación Superior de Ensenada, Ensenada, Mexico
- A01:12** *Effect of the long-scale roughness on the light scattering from slightly rough dielectric layers*
V. Freilikher, Yu Kaganovskii, M. Rosenbluh, Jack and Pearl Resnick Inst. of Advanced Technology, Dpt. of Physics, Bar-Ilan U., Ramat-Gan, Israel

Session B01
Monday, July 13 PM
Mathematical Methods for inverse scattering problems
Organisers : Ch. Pichot, S. Caorsi
Chairs : A.K. Louis, P.C. Sabatier

- B01:01** *Inverse scattering problems and the variational principles*
M.A Hooshyar, Programs in Mathematical Sci., U. of Texas at Dallas, Richardson, USA
- B01:02** *Electromagnetic scattering: a simple method for the solution of the inverse problem*
M. Piana, INFN and Dpt di Fisica, U. di Genova, Genova, Italy
- B01:03** *An approach to the problem of diffraction tomography using a t-operator equation*
K. Ishida, M. Tateiba, Dpt. of Computer Sci. and Communication Engineering, Kyushu U., Fukuoka, Japan
- B01:04** *Reconstruction of a penetrable object with the aid of approximate inverse via singular value decomposition of the scattering operator*
H. Abdullah, Saarländes U., Lehrstuhl für Angewandte Mathematik, Saarbrücken, Germany
- B01:05** *Optimized sources in inverse electromagnetic problem*
E. Cherkasova, Dpt of Mathematics, U. of Utah, Salt Lake City, UT, USA ; A. C. Tripp, Dpt of Geophysics, U. of Utah, Salt Lake City, UT, USA
- B01:06** *Inverse scattering and design of semiconductor heterostructures*
D. Bessis, G. A. Mezincescu, P.C. Sabatier, U. de Montpellier, France
- B01:07** *Inverse scattering theory applications to photonic devices*
L. S. Tamil, Lakshman S. Tamil Broadband Communications Laboratory Erik Jonsson School of Engineering and Computer Sci., U. of Texas at Dallas, Richardson, TX, USA
- B01:08** *Topological shape optimization of radio-electrical structures*
M. Masmoudi, MIP, U. Paul Sabatier, Toulouse, France ; M. Masmoudi, CERFACS, Toulouse, France
- B01:09** *Global algorithm with local optimization (GALLOP) : a new approach to antenna array optimization*
Ch. Massat, N. Rossell, CERFACS, Toulouse, France ; Ch. Roques, ALCATEL Télécom, Dept. Antennes Spatiales, Toulouse, France ; Ch. Roques, Ch. Massat, MIP, UMR 9974, U. Paul Sabatier, Toulouse, France
- B01:10** *Phase space and path integral methods applied to direct and inverse wave propagation modeling*
L. Fishman, Code 7181, Naval Research Laboratory, Stennis Space Center, MS, USA
- B01:11** *A point-source method in inverse electromagnetic scattering*
R. Potthast, Inst. for Numerical and Applied Mathematics U. of Göttingen, Göttingen, Germany
- B01:12** *R-functions method (RFM) for direct and inverse boundary value problems with complex domains in the diffraction theory*
V. F. Kravchenko, Inst. of Radio Engineering and Electronics of the Russian Academy of Sci., Moscow, Russia ; V.L. Rvachev, Inst. of Machine Problems, National Academy of Sci. of Ukraine, Kharkov, Ukraine

Session C01
Monday, July 13 PM
Time Domain Methods I

- C01:01** *FDTD analysis of the mutual coupling between dielectric resonator antennas*
 G. Biffi Gentili, M. Leaoncini, A. Pieraccini, C. Salvador, Dpt di Ingegneria Elettronica, U. di Firenze, Firenze, Italy
- C01:02** *The Holland model for the thin wire simulation revisited*
 F. Collino, Projet Ondes, Inria Roquencourt, Le Chesnais, France ; F. Collino, F. Millot, Cerfaces, Toulouse, France ; E. Duceau, S. Rodts, Dpt. Modélisation Numérique, Aérospatiale CCR, Suresnes, France,
- C01:03** *Efficient analysis of strongly modulated periodic structures using the FD-TD method*
 S. Leonhard, R. Zengerle, Dpt. of Theoretical Electrical Engineering and Optical Communications, U. of Kaiserslautern, Kaiserslautern
- C01:04** *FD-DT analysis of electromagnetic radiation through slots in a PC metallic enclosure*
 A-K. Hamid, M. Alsunaidi, King Fahd U. of Petroleum and Minerals, Dhahran, Saudi Arabia
- C01:05** *Time frequency domain semi-inversion technique for one class of waveguide discontinuities*
 Y. K. Sirenko, N. P. Yashina, Inst. of Radiophysics and Electronics, Ukrainian National Academy of Sci., Kharkov, Ukraine
- C01:06** *Reducing the number of field simulations for optimizing passive MMIC's*
 U. Effing, I. Wolff, Dpt of Electromagnetic Theory and Engineering U. of Duisburg, Germany
- C01:07** *Broadband model of anechoic chamber using Debye's equations for the FDTD*
 B. Fourestié, S. Deshayes, J. Wiart, Z. Altman, C.N.E.T. D.M.R./R.M.C, Issy-les-moulineaux, France
- C01:08** *Analysis of UWB scattering from dielectric objects buried in a lossy layered ground using FDTD and TLM*
 J. LoVetri, Dpt of Electrical and Computer Engineering, U. of Western Ontario, London, Ontario, Canada ; N. R. S. Simons, Directorate of Antennas and Integrate Electronics Communications Research Centre, Ottawa, Ontario, Canada ; B. J. A. M. Van Leersum, TNO Physics and Electronics Laboratory, The Hague, The Netherlands
- C01:09** *Electromagnetic diffraction computing by FDTD and fictitious domain method*
 P. Benjamin, S. Alestra, G. Alléon, N. Budak, E. Duceau, Dpt Modélisation Numérique, Aérospatiale CCR, Suresnes, France ; S. Garcés, Cerfaces, Toulouse, France ; F. Collino, P. Joly, Projet Ondes, Inria Roquencourt, Le Chesnay, France
- C01:10** *Study of coplanar fed antennas using the FDTD method*
 Salvador G. Garcia, Laurens C.J. Baggen, Dirk Manteuffel, Dirk Heberling, IMST, Germany

Session D01
Monday, July 13 PM
Time Domain Methods II

- D01:11** *Finite-difference, time-domain analysis of non uniform transmission lines with nonlinear terminations*
 H. Kabbaj, N. EL Ouazzani, D. Tahri, U. sidi Mohammed Ben Abdellah, Faculté des sciences et techniques Fès Saiss, Dpt de physique, Maroc; A. Benali, U. Mohammed Premier, LEAA, Dpt. de physique, Faculté de Sciences, Maroc
- D01:12** *Optimum design of radar pulses for stealth targets (time-domain approach)*
 Ahmad Cheldavi, IRAN Univ. of Science and Technology, Iran
- D01:13** *Propagation characteristics in waveguides composed of dielectric disks*
 Hiroshi Kubo, Masayoshi Tahara, Dpt. of Electrical and Electronics Eng., Yamaguchi U., Japan
- D01:14** *CRETE : a finite element time domain code applied in industrial context*
 Vincent Mathis, Microwave Dpt., DASSAULT Electronique, Saint Cloud, France

Session E01
Monday, July 13 PM
Neural Network Techniques in Electromagnetics
 Organiser : K. S. Chen
 Chairs : A.J. Chen, L.R. Cander

- E01:01** *A limited survey of neural networks applications for remote sensing problems*
 K.S. Chen, Center for Space and Remote Sensing Research National Central U., Chung-Li, Taiwan
- E01:02** *Neural network for the automatic detection of buried utilities and landmines*
 W. Al-Nuaimy, Y. Nakhkash, M. T. C. Fang, U. of Liverpool, Dpt. of Electrical Engineering, Liverpool, UK ;
 V. T. Nguyen, Shell Research Ltd., Shell Research and Technology Centre, Thornton, Chester, UK ; A. Eriksen,
 D. Leonard, Geo-Service Ltd, Whitney, Oxon, UK
- E01:03** *Neural network approach to low angle radar tracking*
 Y. C. Tzeng, Dpt of Electronics Engineering National Lien-Ho College of Technology and Commerce, Miao-Li,
 Taiwan ; K. S. Chen, Center for Space and Remote Sensing Research, National Central U., Miao-Li, Taiwan
- E01:04** *Neural computation of mutual coupling coefficient between two rectangular microstrip Antennas
 with various substrate thicknesses*
 K. Güneş, S. Sagirolu, M. Erler, Mühendislik Fakültesi, Erciyes U., Elektronik Mühendisliği Bölümü, Kayseri,
 Turkey
- E01:05** *Neural network applications in ionospheric studies*
 L. R. Cander, Rutherford Appleton Laboratory, Chilton, Didcot, Oxon, UK
- E01:06** *Automatic scaling of ionospheric parameters using fuzzy classification techniques*
 L.-C. Tsai, Center for Space and Remote Sensing Research National Center U., Chung-Li, Taiwan ; L.-C. Tsai,
 Graduate Inst. of Space Sci., National Central U., Chung-Li, Taiwan ; F. T. Berkey, Space Dynamics Laboratory,
 Utah State U., Logan, Utah, USA
- E01:07** *A neural network approach to passive microwave remote sensing of the soil moisture*
 Y.-A. Liou, Y. C. Tzeng, K. S. Chen, Center for Space and Remote Sensing Research National Central U., Chung-Li,
 Taiwan
- E01:08** *Application of supervised and unsupervised neural networks to remote sensing image
 classification*
 C.F. Chen, Center for Space and Remote Sensing Research National Central U., Chung-Li, Taiwan
- E01:09** *A neural network based linear antenna array processing for highly reduced side-lobes*
 M. A. Aboul-Dahab, Dpt of Electronics, Arab Academy for Sci. and Technology, Abuker, Alexandria, Egypt ;
 S. E. El-Khamy, Dpt of Electrical Engineering, Faculty of Engineering, Alexandria U., Alexandria, Egypt
- E01:10** *Acquired data application on an image data compression technique*
 E. M. Saad, A. A. Abdelwahab, Dpt of Comm. & Electronics, Faculty of Engineering, U. of Helwan, Cairo, Egypt ;
 M. A. Deyab, N. R. Aiad, Egyptian Radio & Television Union, Cairo, Egypt
- E01:11** *Numerical modeling of interaction electromagnetic signals with oscillator neural networks*
 N V. Spitsyna., V.G. Spitsyn, Siberian Physical and Technical Inst. Tomsk State U., Tomsk, Russia

Session F01
Monday, July 13 PM
Microstrip and Resonator Antennas
 Organiser : L Shafai
 Chairs : L Shafai, Y. Antar

- F01:01** *Investigation of mutual coupling between multi-segment dielectric resonator antennas*
 A. Petosa, A. Irtipiboon, M. Cuhaci, Antenna Array Research Scientist, Communications Research Centre, Ottawa,
 Canada
- F01:02** *Effect of finite ground plane on the directivity of the microstrip square ring antennas*
 P. Moosavi, L. Shafai, Dpt. of Electrical and Computer Engineering, U. of Manitoba Winnipeg, Manitoba, Canada

- F01:03** *Modified waveguide model for the rectangular dielectric resonator antenna*
D. Cheng, Y. M. M. Antar, B. Henry, Dpt of Electrical and Computer Engineering, Royal Military College of Canada, Kingston, Ontario, Canada ; G. Seguin, Canadian Space Agency, Canada
- F01:04** *Gain improvement for annular slot array antenna*
S. Noghanian, L. Shafai, M. Clenet, Dpt. of Electrical and Computer Engineering, The U. of Manitoba, Winnipeg, CANADA
- F01:05** *Wideband antenna suitable for MMIC applications*
Y. M. M. Antar, Dpt of Electrical and Computer Engineering Royal Military College of Canada, Kingston, Ontario, Canada ; H. F. Hammad, A. P. Freundorfer, Queen's U. , Kensington, Ontario, Canada
- F01:06** *An electromagnetically coupled microstrip array with taylor distribution*
M. H. Zahedi, L. Shafai, Dpt. of Electrical and Computer Engineering, U. of Manitoba Winnipeg, Manitoba, Canada
- F01:07** *Improvement of conical horn performance using metallic discs*
M. Clenet, L. Shafai, Dpt. of Electrical and Computer Engineering, U. of Manitoba, Winnipeg, Manitoba, Canada
- F01:08** *Analysis of effects of microstrip stub on operating frequencies of microstrip-fed slot antennas*
D. Mirshekar-Syahkal, H. G. Akhavan, Dpt. of Electronic Systems Engineering, U. of Essex, Colchester, Essex, UK
- F01:09** *Stacked C-patch antenna partially short-circuited*
L. Zaid, G. Kossias, J. Y. Dauvignac, A. Papiernik, Laboratoire d'Electronique, Antennes et Telecommunications, U. de Nice-Sophia Antipolis, Valbonne, France
- F01:10** *Stratified surface finite element method for arbitrary multilayered-multielement printed Antennas*
Ch. Luquet, J. Y. Dauvignac, Laboratoire d'Electronique, Antennes et Télécommunications, U. de Nice-Sophia Antipolis / CNRS, Valbonne, France ; C. Dedeban, France Telecom/CNET, La Turbie, France
- F01:11** *An Experimental study of rectangular microstrip antenna on dielectric substrates*
S. Rafath Ara, P. M. Hadalgi, P. V. Hunagund, S. F. Farida, Dpt of PG Studies and Research in Applied Electronics, Gulbarga U., Gulbarga, Karnataka, INDIA

Session G01
Monday, July 13 PM
Microwave Phase Shifters, Circulators and Attenuators

- G01:01** *Microwave phase shifters based on ferroelectric films.*
A.B.Kozyrev, V. N. Osadchy, A. S. Pavlov, St. Petersburg Electrotechnical U., St.Petersburg, Russia ; G. A. Koepf, C. H. Mueller, T.V. Rivkin, Superconducting Core Technologies Inc., Golden, USA
- G01:02** *Some aspects of cobalt substitution in Lithium Titanium ferrite for phase shifter application*
N. Kumar, P. Kishan, Solidstate Physics Laboratory, Delhi, India
- G01:03** *Field theory analysis of microstrip circulator using contour integral method*
E. A. F. Abdallah, A. Sedek, Electronics Research Inst., National Research Centre Buildings, El-Tahrir Street, Cairo, Egypt ; M. El-Said, E. Hashish, Dpt of Electronics and Communications, Faculty of Engineering, Cairo U., Cairo, Egypt
- G01:04** *Detailed matching characteristic of a punched ferrite EM absorber*
Y. Kotsuka, A. Maeda, Y. Komazawa, Dpt. of Telecommunications, Tokai U., Hiratsuka-shi, Japan
- G01:05** *Regulation of attenuation with minimum phase shift*
O. V. Stoukatch, Tomsk State U. of Control Systems and Radioelectronics (TUCSR), Tomsk, Russia
- G01:06** *The new controlable attenuators*
O. V. Stoukatch, I.V. Stoukatchev, Tomsk State U. of Control Systems and Radioelectronics (TUCSR), Tomsk, Russia

Session G02
Monday, July 13 PM
Millimeter Wave Devices and Systems
 Organiser : E. M. Biebl
 Chairs : E. M. Biebl, G. E. Ponchak

- G02:01** *New developments in microwave photonics*
 A.J. Seeds, Dpt of Electronic and Electrical Engineering, U. College London, London, England
- G02:02** *Wideband microwave optic link for remote sensing*
 A. Stöhr, R. Heinzelmann, M. Alles, D. Jäger, Gerhard-Mercator-U. Duisburg, FG Optoelektronik, Duisburg, Germany
- G02:03** *Finite ground coplanar (FGC) waveguide: a better transmission line*
 G. E. Ponchak, NASA Lewis Research Center, Cleveland, OH ; E. Tentzeris, L. P. B. Katehi, U. of Michigan, MI
- G02:04** *Low cost direction sensitive doppler radar sensors*
 R. H. Rasshofer, E. M. Biebl, Lehrstuhl für Hochfrequenztechnik, Technische U. München, München, Germany
- G02:05** *Doppler simulator for a dual frequency near-range CW-radar*
 U. Siart, J. Detlefsen, Lehrstuhl für Hochfrequenztechnik-HFS, Technische U. München, München, Germany
- G02:06** *Self-oscillating mixers in automotive radars*
 J.-F. Luy, Daimler-Benz Forschung und Technologie, Ulm, Germany

Session H01
Monday, July 13 PM
Composite Materials I
Workshop on Complex Media and Measurement Techniques
 Organisers : D. Jeulin, V. Vigneras
 Chairs : G.W. Milton, D. Jeulin

- H01:01** *Characterization of the absorbent properties of an heterogeneous material containing carbon black particles as a function of the process*
 C. Marchand, J. L. Greffe, Laboratoire des Sci. du Génie Chimique, UPR 6811, CNRS, ENSIC, INPL, Nancy, France
- H01:02** *Prediction of the effective permittivity of carbon-black polymer composites from their morphology*
 L. Savary, D. Jeulin, Centre de Morphologie Mathématique, ENSMP, Fontainebleau, France ; D. Jeulin, A. Thorel, Centre des Matériaux Pierre-Marie Fourt, ENSMP, Evry, France
- H01:03** *Local scale approach of the complex permittivity on a carbon-black polymer composite*
 L. Savary, D. Jeulin, Centre de Morphologie Mathématique, ENSMP, Fontainebleau, France ; B. Delcroix, D. Jeulin, A. Thorel, Centre des Matériaux Pierre-Marie Fourt, ENSMP, Evry, France
- H01:04** *Exact solutions for the dispersion relation in a wide class of periodic media with complex moduli*
 G. W. Milton, Dpt of Mathematics, U. of Utah, Utah, USA
- H01:05** *Electromagnetic study of heterogeneous materials based on integral representation and homogenization methods*
 H. Roussel, W. Tabbara, U. de Paris VI, Division Ondes-L.S.S, Gif sur Yvette, France
- H01:06** *Scaling theory for homogenization of the Maxwell equations*
 A.P. Vinogradov, Sci. Center for Applied Problems in Electrodynamics, Russian Academy of Sci., Moscow, Russia
- H01:07** *Modelling impedance spectra results on complex dielectrics with effective media and other models*
 D S McLachlan, Physics Dpt, U. of the Witwatersrand, South Africa ; T. O. Mason, Materials Sci. and Engineering Dpt, Northwestern U., Evanston, USA
- H01:08** *Fast numerical schemes for computing the response of nonlinear composites with complex microstructures*
 D. Eyre, G. W. Milton, Dpt of Mathematics, UT, USA

- H01:09** *The Problem of Maxwell's boundary conditions in MIE's theory*
U. Kreibitz, Physikalishes Inst. der RWTH Aachen, Germany
- H01:10** *Effective field method in the problem of electromagnetic wave propagation through media with sets of isolated inclusions*
S. Kanaun, Inst. Tecnológico y de Estudios Superiores de Monterrey, Campus Estado de México, Edo. de México, Mexico; D. Jeulin, Centre de Morphologie Mathématique, ENSMP, Fontainebleau, France
- H01:11** *Resonant absorptions in granular silver films near the percolation : experiment and simulation using an entropic model*
C. Andraud, J. Lafait, Laboratoire d'Optique des Solides de l'U. P. et M. Curie Unité associée au CNRS, Paris, France ; A. Beghdadi, Laboratoire des Propriétés Mécaniques et Thermodynamiques de Matériaux, U. Paris Nord, Villetaneuse, France
- H01:12** *Combined models for the electromagnetic dependent scattering in dense heterogeneous media*
J.C. Auger, J. Lafait, Laboratoire d'Optique des Solides de l'U. P. et M. Curie Unité associée au CNRS, Paris, France

J. I. P. R. 4 - Session I01

Monday, July 13, PM 13:40-17:20

Basic Polarimetric Theory and Applications

Organiser : E. Krogager

Chairs : E. Krogager and Z.H. Czyz

- I01:01** *Basic polarimetric radar theory and its application in radar target identification*
W.A. Holm, GIT-RAIL, Atlanta, GA/USA.
- I01:09** *A new extended target decomposition scheme*
J. R. Huynen, P. Q. Research, Los Altos Hills, California, USA
- I01:02** *The expression of reciprocity conditions in polarimetric algebras*
D.H.O. Bebbington, Dept. of Electronic Systems Engineering, University of Essex, Colchester, U.K.
- I01:03** *Utilization of phase related information in radar polarimetry*
E. Krogager, Danish Defense Research Establishment, Copenhagen, Denmark
- I01:04** *Theoretical results of the bistatic radar polarimetry on canonical targets*
A.L. Germond, E. Pottier, J. Saillard, Lab SEI-EP CNRS 63, IRESTE, Nantes, France
- I01:05** *The Poincare sphere of tangential phasors as two-folded Riemann surface in radar polarimetry*
(Overview) Z.H. Czyz, Telecommunications Research Institute, Warszawa, Poland.
- I01:06** *On a phenomenological model choice of waves scattering by complex radar targets : comparison of simulation data and polarimetric measurements data*
V.I. Karnychev, Tomsk University of Control System and Radioelectronics, Tomsk, Russia.
- I01:07** *Entropy and polarization of a stochastic radiation field*
C. Brosseau, Dept. de Physique, Université de Bretagne Occidentale, Brest, France.
- I01:08** *New contemplations on polarimetric decomposition based on expected target orientation*
E. Hanle, FGAN-FFM/EL, Wachtberg, Germany

Session J01

Monday, July 13 PM

Remote Sensing in European Union Projects

Organiser : D. Solimini

Chairs : D. Solimini, G. Elgered

- J01:01** *Snowtools research and development of remote sensing methods for snow hydrology*
T. Guneriusen, NORUT IT Ltd., Tromsø, Norway ; R. Solberg, Norwegian Computing Center, Norway ; S. Kolberg, SINTEF, Civil and Environmental Engineering, Norway ; M. Hallikainen, Helsinki U. of Technology, Finland ; D. Hiltbrunner, C. Matller, U. of Bern, Switzerland ; A. Harrison, U. of Bristol, UK

- J01:02** *Early warning and long and long-term monitoring of volcanoes using sunthetic aperture radar interferometry*
P. Briole, Dpt de Sismologie, Inst. de Physique du Globe de Paris, Paris, France
- J01:03** *EUFORA : European Forest Observations by Radars*
T. Le Toan, CESBIO, Toulouse, France ; J. Askne, CTH, Goteborg, Sweden ; A. Beaudouin, LCT, Montpellier, France ; M. Hallikainen, HUT, Helsinki, Finland ; S. Quegan, SCEOS, Sheffield, UK ; L. Ulander, FOA, Sweden ; U. Wegmuller, Gamma A.G., Muri, Switzerland
- J01:04** *European radar-optical research assemblage*
D. Solimini, U. Tor Vergata, Roma, Italy ; T. Le Toan, CESBIO, Toulouse, France ; C. Schumullius, DLR, Oberpfaffenhofen, Germany ; M. Borgeaud ESA/ESTEC, Noordwijk, Netherlands ; U. Wegmüller, Gamma A. G., Muri, Switzerland ; A. Guissard U. Catholique de Louvain, Belgique ; S. Quegan U. of Scheffield, U K ; J. F. Moreno U. of Valencia, Spain ; D.H. Hoekman, Wageningen Agricultural U., Netherlands
- J01:05** *The stardom concerted action*
B. Chapron, J. Tournadre, IFREMER, France ; D. Hauser, CETP, France ; H. Johnsen, NORUT, Norway ; A. Guissard, P. Sobieski, UCL, Belgium ; J. M. Lefevre, J. Poitevin, H. Roquet, Meteo-France, France
- J01:06** *Progress on advanced weather radar techniques in the darth project*
D H O Bebbington, Dpt of Electronic Systems Engineering, U. of Essex, UK
- J01:07** *MEFFE - Meteorological forecasting for flood events*
F. Prodi, Dpt of Physics, U. of Ferrara and FISBAT - CNR, Clouds and Precipitation Group, Bologna, Italy
- J01:08** *The Wavefront Project : ground based GPS meteorology in Europe*
G. Elgered, Onsala Space Observatory, Chalmers U. of Technology, Onsala, Sweden ; A. H. Dodson, Inst. of Engineering Surveying and Space Geodesy, U. of Nottingham, Nottingham, UK ; A. Rius, IEEC/UB-CSIC-UAB-UPC, Barcelona, Spain ; B. Buerki, Inst. fur Geodesie & Photogrammetrie, Zurich, Switzerland ; M. Rotacher, U. of Berne, Bern, Switzerland

Session K01
Monday, July 13 PM
Remote Sensing of Atmosphere
Organiser : N. Pierdicca
Chairs : N. Pierdicca, N. Kaempfer

- K01:01** *Microwave radiometric retrieval of atmospheric temperature profiles by using temporal and spatial correlations*
P. Basili, S. Bonafoni, Inst. of Electronics, U. of Perugia, Perugia, Italy ; P. Ciotti, F. S. Marzano, Dpt. of Electrical Engineering, U. of L'Aquila, L'Aquila, Italy ; G. d'Auria, N. Pierdicca, Dpt of Electronic Engineering, U. of Roma «La Sapienza», Roma, Italy
- K01:02** *Numerical simulations and aircraft measurements of melting layer effects on microwave emission and scattering of stratiform precipitation*
P. Bauer, Deutsche Forschungsanstalt Luft und Raumfahrt (DLR), Koeln, Germany ; F. S. Marzano, Dpt. Electrical Engineering, U. dell'Aquila, L'Aquila, Italy
- K01:03** *Cloud parameter retrieval from spaceborne microwave radiometry: a comparison of cloud signature simulations to SSM/I historical data over the Mediterranean area*
G. d'Auria, N. Pierdicca, Dpt. Electronic Engineering, U. "La Sapienza" of Rome, Roma, Italy ; P. Basili, Inst. of Electronic, U. of Perugia, Perugia, Italy ; P. Ciotti, F. S. Marzano, Dpt. of Electrical Engineering, U. of L'Aquila, L'Aquila, Italy ; R. P. Nossai, Servizio Agrimeterologico Regionale, Sassari, Italy
- K01:04** *Neural Networks for the retrieval of atmospheric profiles: data feature extraction and dimensionality reduction*
F. Del Frate, G. Schiavon, U. Tor Vergata - DISP, Roma, Italy
- K01:05** *A groundbased multi-sensor package for cloud characterization*
S. Crewell, U. Löhner, H. Mebold, C. Simmer, Meteorological Inst., U. of Bonn, Bonn, Germany
- K01:06** *Microwave and infrared measurements used to validate water vapor retrievals from sunphotometer data*
T. Ingold, C. Mätzler, Inst. of Applied Physics, U. of Bern, Bern, Switzerland ; P. Demoulin, Inst. d'Astrophysique, U. de Liege, Liege, Belgium

- K01:07** *Water vapor isotope H_2O_{18} and ozone in the middle atmosphere derived from millimeter-wave radiometry of transition lines near 203 GHz*
A. Siegenthaler, R. Peter, N. Kämpfer, Inst. of Applied Physics, U. of Bern, Bern, Switzerland
- K01:08** *Measurements of ClO, HCl and ozone in the Arctic vortex with an airborne submm radiometer*
A. Murk, R. Peter, N. Kämpfer, Inst. of Applied Physics, U. of Bern, Bern, Switzerland
- K01:09** *How microwave measurements of ozone can complement balloon-borne radiosoundings*
Y. Calisesi, R. Peter, N. Kämpfer, Inst. of Applied Physics, U. of Bern, Bern, Switzerland

Session L12
Monday, July 13 PM
Sensors : Radar and Radiometer I

- L12:10** *Radarclinometry*
S. Paquerault, H. Maître, Dpt. IMA, ENST, Paris, France
- L12:01** *Naval special warfare PMMW data collection results*
B. Blume, Nichols Research Corporation, Panama City, FL ; J. Wood, F. Downs, Naval Coastal Systems Station, Panama City, FL
- L12:02** *Passive millimeter wave imaging device for naval special warfare*
F. Downs, Coastal Systems Station Dahlgren Division, Naval Surface Warfare Center, Panama City, FL
- L12:03** *3D Migration/Array processing using GPR data*
M. L. Moran, USA Cold Regions Research and Engineering Lab, Hanover, NH, USA
- L12:04** *Periodically grooved conical dielectric feeder for millimeter wave system applications*
C. Das Gupta, Dpt of Electrical Engg, Indian Inst. of Technology, Kanpur ; A. Kumar, Dpt of Electronics Engg, Assam Engineering College, Gauhati, Assam
- L12:05** *Point-matching technique for computation of magnetic field perturbation by finite length crack in high sensitivity ACFM technique*
D. Mirshekar-Syahkal, R. F. Mostafavi, Dpt. of Electronic Systems Engineering, U. of Essex, Essex, UK
- L12:06** *Recent advances in high sensitivity ac field measurement for electromagnetic non-destructive evaluation*
D. Mirshekar-Syahkal, Dpt. of Electronic Systems Engineering, U. of Essex, Essex, UK
- L12:07** *Accordinative study between the vertical electrical sounding and TEM methods for exploring groundwater along Cairo-Alexandria road (Egypt)*
S. Sh. Osman, A. Gh. Hassaneen, E. A. Al-Sayed, National Research Institute of Astronomy and Geophysics Laboratory for geoelectric and Geothermics, Helwan, Cairo, Egypt
- L12:08** *The exploration of the groundwater aquifer by using TEM & VES methods in the southern part of the Nile Delta*
S. Sh. Osman, A. Gh. Hassaneen, E. A. Al-Sayed, National Research Institute of Astronomy and Geophysics Laboratory for geoelectric and Geothermics, Helwan, Cairo, Egypt
- L12:09** *A Fast multilevel algorithm for radar imaging*
A. Boag, S. Shammas, Israel Aircraft Industries, Dpt. 4483, Ben-Gurion Airport, Israel

Session L01
Monday, July 13 PM
Antenna Arrays in Mobile Communications
Organiser : L. Godara
Chairs : L. Godara, J. Saillard

- L01:01** *Phased array antennas for mobile communications*
S. Ohmori, Yokosuka Radio Communications Research Center, Communications Research Laboratory, Ministry of Posts and Telecommunications, Tokyo, Japan
- L01:02** *Ambiguities in antenna array for mobile communications*
A. Flieller, P. Larzabal, L.E.Si.R. E.N.S Cachan, Cachan, France

- L01:03** *Space-time diversity receivers for DS-CDMA systems*
J. F. Diouris, J. Saillard, Laboratoire Systèmes Electronique et Informatiques, IRESTE, Nantes, France ; J. Zeidler, Dpt. of Electrical and Computer Engineering, U. of California San Diego, California, USA
- L01:04** *Adaptative unequally spaced phased arrays*
S. Nagraj, S. Park, T. K. Sarkar, Dpt. of Electrical and Computer Engineering, Syracuse U., Syracuse, New York
- L01:05** *Circular antenna array fed by a seven-port 'RING-STAR' divider*
S. Fassetta, C. Roblin, A. Sibille, ENSTA (Ecole Nationale Supérieure des Techniques Avancées), Paris, France
- L01:06** *An active adaptive array for HF communications*
L. Maoheng, Z. Shanli, L. Wenxing, Y. Changhan, L. Guodong, Harbin Engineering U., Dpt of Electronic Engineering, Harbin, China

Session M01
Monday, July 13 PM
Material Measurements I
Workshop on Complex Media and Measurement Techniques

- M01:01** *Gas absorption measurement in the millimeter/submillimeter band by vector signal Detection*
N. Kakizaki, N. Takeya, T. Suzuki, N. Kumazawa, Y. Watanabe, Dpt. of Electrical & Electronics Engineering, Nippon Inst. of Technology, Saitama-ken, Japan
- M01:02** *Measuring density of snow particles and its effect to radio wave attenuation*
Toru Shiina, Dpt of Electrical Engineering, Toyama National College of Technology, Toyama, Japan ; K.-I. Muramoto, Dpt of Electrical and Computer Engineering, Faculty of Engineering, Kanazawa U., Kanazawa, Japan
- M01:03** *Measurement of material constants in near zone of electromagnetic horn*
V. A. Chistyayev, K. N. Rozanov, D. E. Ryabov, V. N. Semenenko, N. A. Simonov, Scientific Center for Applied Problems in Electrodynamics, Russian Academy of Sci., Moscow, Russia
- M01:04** *A generalized plane wave model for radiating near field of horn antenna*
N. A. Simonov, K. N. Rozanov, Scientific Center for Applied Problems in Electrodynamics, Russian Academy of Sci., Moscow, Russia
- M01:05** *Measurment of complex permittivity and permeability of dielectric materials using a coaxial transmission line with sensitivity and error analysis*
A. Cheldavi, IRAN U. of Sci. and Technology, Tehran, Iran
- M01:06** *Analysis of uncertainty associated with microwave measurements of lossy materials*
B. Yu. Kapilevich, Siberia State Academy of Telecommunications & Informatics Dpt. of Applied Electromagnetics & Antennas, Novosibirsk, Russia
- M01:07** *The use of the dielectric properties of hardening concrete for monitoring the strength development*
M. A. Hilhorst, IMAG-DLO, Measurment Technology Dpt, Wageningen, The Netherlands ; A. van Beek, Delft U. of Technology, Civil Engineering, Concrete Structures Stevin Laboratory, Delft, The Netherlands ; K. Van Breugel, Delft U. of Technology, Civil Engineering, Concrete Structures, Delft, The Netherlands
- M01:08** *Characterization of radar absorbing material in the time-domain*
J. W. Odendaal, Dpt. of Electrical and Electronic Engineering, U. of Pretoria, Pretoria, South Africa
- M01:09** *A comparison of measurement uncertainty in the measurement of complex permittivity and permeability at microwave frequencies using transmission line and quasi-optic systems*
I. J. Youngs, S. G. Appleton, N. Karamitsos, M. Bryanton, T. Stickland, Structural Materials Centre, DERA Farnborough, Hampshire, UK
- M01:10** *New measurement technique for the surface resistance of superconducting thin film*
V. S. Dobromyslov, Moscow Power Engineering Inst., Moscow, Russia

Session A02
Tuesday, July 14 AM
RCS Models of Large and Complex Structures and Validation
 Organiser : E. Kemptner
 Chairs : E. Kemptner, U. Jakobus

- A02:01** *RCS computation of electrically large scatterers with the method of moments : parallelization and hybridization*
 U. Jakobus, Inst. für Hochfrequenztechnik, Univ. of Stuttgart, Stuttgart, Germany
- A02:02** *Validation of RCS signature simulations of ground targets at millimeter wave frequencies*
 G. Biegel, H. Essen, D. Nüssler, FGAN-Forschungsinst. für Hochfrequenzphysik, Wachtberg-Werthhoven, Germany
- A02:03** *Radar cross section computation using rapport and the method of equivalent currents, results and validation*
 L.J. v. Ewijk, Radar Group, TNO Physics and Electronics Laboratory, The Hague, The Netherlands
- A02:04** *Multiple reflections in GRECO RCS prediction code*
 J. M. Rius, M. Vall-Ilossera, A. Cardama, Dpt. Teoria del Senyal i Comunicacions, Univ. Politècnica de Catalunya, Barcelona, Spain
- A02:06** *Validation of monostatic and bistatic RCS-calculations of a stealth configuration by experiments*
 E. Kemptner, D. Klement, German Aerospace Center DLR, Inst. of Radio Frequency Technology, Wessling, Germany
- A02:07** *Asymptotic method in a multi domain and multi method approach for large targets*
 V. Bazin, B. Fromentin, A. Barka, G. Bobillot, Office National d'Etudes et de Recherches Aéronautiques ONERA, Châtillon, France
- A02:08** *Some applications of the DECLIC time domain code for SER prediction*
 L. Virette, Matra Bae Dynamics, DTM/DTV/SSN, Vélizy Villacoublay, France
- A02:09** *Validation of 2-D finite element predictions for multi-coated bodies*
 C. J. Smartt, N.A. Verhoeven, J. A. Ogilvy, D.A. Todd, N. Wignall, Sowerby Research Centre, British Aerospace Ltd, Filton, Bristol, UK

Session B02
Tuesday, July 14 AM
Tasks and Trends in Electromagnetic / Elastic / Wavefield Inversion
 Organiser : D. Lesselier
 Chairs : D. Lesselier, J. Bowler

- B02:01** *Resolution and super-resolution in far- and near-field electromagnetic imaging*
 Ch. de Mol, Dpt. of Mathematics, U. Libre de Bruxelles, Bruxelles, Belgium
- B02:02** *Decomposition of the time reversal operator as a tool for electromagnetic sensing*
 M. Saillard, G. Micolau, Laboratoire d'Optique Electromagnétique, Faculté de St. Jérôme, Marseille, France
- B02:03** *On the retrieval of simplified objects in wavefield inversion*
 R.E. Kleinman, Center for the Mathematics of Waves, U. of Delaware, Newark, USA ; D. Lesselier, Laboratoire des Signaux et Systèmes, CNRS/SUPELEC, Gif-sur-Yvette, France ; A. Wirgin, Laboratoire de Mécanique et d'Acoustique, Marseille, France
- B02:04** *Subsurface imaging algorithms in archeology*
 R. Pierri, G. Leone, Dpt di Ingegneria dell'Informazione, Seconda U. di Napoli, Naples, Italy ; T. Isernia, U. di Napoli "Federico II", Naples, Italy
- B02:05** *Shape and profile reconstruction of two-dimensional dielectric objects*
 A. Tjihuis, A. Litman, Faculty of Electrical Engineering, Eindhoven U. of Technology, Eindhoven, The Netherlands ; K. Belkebir, M. Saillard, P. Vincent, Laboratoire d'Optique Electromagnétique, Faculté de St. Jérôme, Marseille, France
- B02:06** *The far-field expansion theorem in Biot's thermoelasticity*
 F. Cakoni, Dpt of Mathematics, U. of Tirana, Albania ; G. Dassios, Division of Applied Mathematics, Chemical Eng. Dpt., U. of Patras, Greece ; V. Kostopoulos, Applied Mechanics Laboratory, Dpt. of Mechanical and Aeronautical Eng., U. of Patras, Patras, Greece,

- B02:07** *Thin-skin eddy-current inversion for the determination of cracks shapes*
J.R. Bowler, Dpt. of Physics, U. of Surrey, Guildford, Surrey, U.K.
- B02:08** *Experimental verification of super-resolution in nonlinear inverse scattering*
F.-C. Chen, W. C. Chew, Electromagnetics Laboratory, Center for Computational Electromagnetics, Dpt. of Electrical and Computer Engineering, U. of Illinois, Urbana, USA
- B02:09** *Inverse scattering for dielectric objects using the nonmeasurable equivalent current density inside the scatterers*
S. Caorsi, Dpt of Electronics, U. of Pavia, Pavia, Italy ; G. L. Gragnani, Dpt of Biophysical and Electronic Engineering, U. of Genoa, Genoa, Italy

Session C02
Tuesday, July 14 AM
New and Efficient Methods for Computational Electromagnetics
Organiser : J. M. Rius
Chairs : J. M. Rius, J.R. Mosig

- C02:01** *TM' scattering from conducting structures utilizing finite elements in the time domain*
T. K. Sarkar, T. Roy, Syracuse U. ; M. Salazar-Palma, L. Emilio-Castillo, Polytechnique U. of Madrid, Spain ; A. R. Djordjevic, U. Belgrade
- C02:02** *Usage of Hilbert matrices in the reduced expansion and field testing (REFT) method for matrix thinning*
B.Z. Steinberg, R. Kastner, E. Gershon, Faculty of Engineering, Tel-Aviv U., Tel-Aviv, Israel
- C02:03** *Efficient techniques for the electromagnetic analysis of passive microwave components using the admittance matrix representation*
V.E. Boria, A. Valero, M. Ferrando, Dpt. de Comunicaciones, U. Politecnica de Valencia, Valencia, Spain ; M. Guiglielmi, European Space Research and Technologie Centre, Noordwijk, The Netherlands
- C02:04** *Hybrid method based on a generalized admittance matrix representation*
A. Valero, V. Boria, M. Ferrando, Dpt. de Comunicaciones, U. Politecnica de Valencia, Valencia, Spain
- C02:05** *Impact of a fast wavelet transform approach on the effective design of planar antennas*
G. Gheri, J. R. Mosig, Laboratory of Electromagnetics and Acoustics, Ecole Polytechnique de Lausanne, Lausanne CH
- C02:06** *The integral equation MEI for three-dimensional scatterers*
J. M. Rius, E. Ubeda, J. Parron, A. Cardama, Dpt. teoria del Senyal i Communications, U. Politecnica de Catalunya, Barcelona, Spain

Session D02
Tuesday, July 14 AM
Computational Workshop
Organiser : A. Taflove

Session E02
Tuesday, July 14 AM
Wavelets in Electromagnetics

- E02:01** *Time domain solution of differential equations using biorthogonal B-Spline-wavelets*
M. Aidam, P. Russer, Lehrstuhl für Hochfrequenztechnik, Technische U. München, München, Germany
- E02:02** *The wavelet optimized finite difference time domain method*
M. K. Sun, W. Y. Tam, Dpt of Electronic Engineering The Hong Kong Polytechnic U., Hung Hom, Kowloon, Hong Kong
- E02:03** *A wavelet operational method for solving linear partial differential equations*
C.-F. Chen, J.-L. Wu, Dpt. of Electrical Engineering, National Cheng Kung U., Tainan, Taiwan

- E02:04** *Wavelet and propagation prediction for mobile radio communications*
R. Vauzelle, IRCOM-SIC U. de Poitiers, Futuroscope, France
- E02:05** *Signal processing of data from magnetic flow detector devices using wavelet transformation*
J. Pistora, M. Lesnak, Dpt. of Physics, Technical U. Ostrava, Ostrava Poruba, Czech Republic ; J. Vlcek, Dpt of Mathematics, Technical U. Ostrava, Poruba, Czech Republic
- E02:06** *Wavelet approximation of distributed parameters electric line*
M. Ziolkowski, U. of Mining and Metallurgy, Dpt. of Electronics, Krakow, Poland

Session F02
Tuesday, July 14 AM
Microstrip Antennas and Planar Antennas

- F02:01** *Dynamic method applied in planar antenna design*
H. C.C. Fernandes, A. R. N. Farias, Dpt of Electrical Engineering, Federal U. of Rio Grande do Norte, Natal, RN, Brazil
- F02:02** *Solution of radiation characteristics of a thin planar metal-dielectric antenna by the method of steepest-descent and Weiner-Hoff technique*
C. Das Gupta, Senior Member IEEE, Dpt of Electrical Engg, Indian Inst. of Technology, Kanpur ; A. KumarGogoi, Dpt of Electronics Engg., Gauhati, Assam, India
- F02:03** *The diffraction of surface and space waves at the truncation of a planar dielectric structure*
V. Volski, G. Vandenbosch, Katholieke U. Leuven Faculteit Toegepaste Wetenschappen Dpt Elektrotechniek, Afdeling ESAT-TELEMIC, Leuven, Heverlee, Belgium
- F02:04** *Slot antennas fed by a coplanar waveguide*
J. Parlebas, R. Schertlen, W. Wiesbeck, Inst. für Höchstfrequenztechnik und Elektronik U. of Karlsruhe, Karlsruhe, Germany
- F02:05** *Theoretical and experimental analysis microstrip modular antenna on multilayer dielectric*
M. Wnuk, W. Koosowski, M. Amanowicz, Military U. of Technology, Electronics Faculty, Warsaw, Poland
- F02:06** *Radiation from arbitrarily shaped microstrip patch antennas using the theory of characteristic modes*
G. Aguilili, G. Di Massa, Dpt di Elettronica, Informatica e Sistemistica U. della Calabria, Arcavacata di Rende, Italy
- F02:07** *Broadband and multifrequency dielectric resonator antennas*
A. Sangiovanni, Ch. Pichot, J. Y. Dauvignac, Laboratoire d'Electronique, Antennes et Telecommunications, U. de Nice-Sophia Antipolis, CNRS UPRESA 6071, Valbonne, France
- F02:08** *Optimization of a 'YAGI-LIKE' stacked microstrip dipole array using evolutionary programming*
A. Hoorfar, S. S. Rao, ECE Dpt, Villanova U., Villanova, PA, USA ; K. Chellapilla, Dpt of ECE, U. of California, San Diego, CA, USA
- F02:09** *Dual frequency microstrip antennas*
P. V. Hunagund, I. Ahmad Kahan, S. N. Mulgi, Dpt. of Applied Electronics, Gulbarga U., Karnataka, India ; R. M. Vani, U. Sci. Instrumentation Centre, Gulbarga U., Karnataka, India
- F02:10** *Enhancement of bandwidth of dual frequency rectangular microstrip antenna by feeding technique*
P. V. Hunagund, S. N. Mulgi, S. F. Farida, Dpt. of Applied Electronics, Gulbarga U., Karnataka, India ; R. M. Vani, U. Sci. Instrumentation Centre, Gulbarga U., Karnataka, India

Session G03
Tuesday, July 14 AM
Solitons and Non-linear Optical Fiber Transmission

- G03:01** *Influence of mode dispersion on the optical pulses transformation within periodic nonlinear fiber*
D.I. Sementsov, I. O. Zolotovskiy, Ulyanovsk State U., Ulyanovsk, Russia
- G03:02** *Simulation of an WDM system using SIMNT*
L. S. Mendes, J. Klein, Faculdade de Engenharia Elétrica e de Computação U. Estadual de Campinas, Campinas, Spain

- G03:03** *Experimental verification of bit pattern effects obtained in numerical simulations of a 10 GBit/s 1.3 μ m optical communication system*
J. Eckert, S. Reichel, R. Zzngerle, U. Kaiserslautern, Fachbereich Elektrotechnik, Kaiserslautern, Germany ;
R. Leppla, A. Mattheus, Technologiezentrum der Deutschen Telekom AG, Darmstadt
- G03:04** *Erbium-doped nonlinear fiber coupler: influence of wavelength mismatch on soliton switching*
P. M. Ramos, J. R. Costa, C. R. Paiva, Dpt de Engenharia Electrotecnica e de computadores, Inst. for Telecommunications, IST, Lisboa, Portugal
- G03:05** *Wavelength-Division multiplexing with solitons in Erbium-doped fiber amplifiers*
J. R. Costa, C. R. Paiva, Dpt de Engenharia Electrotecnica e de Computadores, Inst. for Telecommunications, IST, Technical U. of Lisbon, Lisbon, Portugal
- G03:06** *Pulse Position Modulation (PPM) of soliton trains in optical fibers*
J. I. da Silva, Dpt de Engenharia Elétrica, Centro de Tecnologia, U. Federal do Ceará, Ceará, Brazil ;
A. S. B. Sombra, Laboratório de Óptica não Linear e Ciência dos Materiais (LONLCM) Dpt de Física, U. Federal do Ceará, Ceará, Brazil
- G03:07** *Soliton switching in three-core nonlinear directional fiber couplers*
A. F. Teles, Dpt de Engenharia Electrica, Centro de Tecnologia, U. Federal do Ceará, Ceará, Brazil ;
A. S. B. Sombra, M. G. da Silva, Laboratório de Óptica não Linear e Ciência dos Materiais LONLCM, Dpt de Física, U. de Federal do Ceará, Ceará, Brazil

Session G04
Tuesday, July 14 AM
Microwave Components I

- G04:01** *Implementing transmission zeros in broadside coupled microstrip filters*
A. Alvarez, M. M. Guglielmi, J. R. Mosig, Laboratoire d'Electromagnetisme et d'Acoustique, Ecole polytechnique Fédérale de Lausanne, Lausanne, Switzerland
- G04:02** *Multilayered substrates to design high performance wideband couplers and filters*
S. Denis, Ch. Person, B. Della, S. Toutain, Laboratoire d'Electronique et des Systèmes de Télécommunications LEST-UMR 6616. ENST de Bretagne-UBO., Brest, France
- G04:03** *A new design method for the realization of the LC low-pass filters using microstrip lines*
R. Ramiz, Yildiz Technical U., Electronic and Communication Eng. Dpt., Istanbul, Turkey
- G04:04** *A new low-pass filter design based on the required phase response*
R. Ramiz, Yildiz Technical U., Electronic and Communication Eng. Dpt., Istanbul, Turkey
- G04:05** *20 GHz tunable filter based on ferroelectric films*
V. N. Keys, A. B. Kozyrev, M.L. Khazov, St. Petersburg Electrotechnical U., St. Petersburg, Russia ; J. Sok, J. S. Lee, Samsung Advanced Inst. of Technologies, Korea
- G04:06** *Analysis of a grating-assisted directional coupler using coupled-mode formulation based on singular perturbation technique*
K. Watanabe, K. Yasumoto, Dpt of Computer Sci. and Communication Engineering, Graduate School of Information and Electrical Engineering, Kyushu U., Fukuoka, Japan

Session H02
Tuesday, July 14 AM
Composite Material Modeling I
Workshop on Complex Media and Measurement Techniques
Organiser : C. Brosseau
Chairs : C. Brosseau, U. Federhof

- H02:01** *Faraday effect in composites*
Dr. M. Barthelemy, CEA-CELV Service de la Matiere Condensee, Villeneuve-St-Georges, France
- H02:02** *New aspects of the dynamic behaviour of partly magnetized composite materials*
P. Quéffelec, D. Bariou, M. Le Floch, U. De Bretagne Occidentale, U.F.R. Sci., Brest, France ; P. Gelin, ENST de Bretagne, Brest, France

- H02:03** *Dielectric constant of lossy composite materials*
A. Béréal, Centre de Génie Electrique de Lyon, Ecole Centrale de Lyon, Ecully, France ; C. Brosseau, Dpt de Physique, U. de Bretagne Occidentale, Brest, France
- H02:04** *Broadband dielectric spectroscopy as a method to characterise the microstructure of composite materials*
R. Pelster, G. Nimtz, Physikalisches Inst. der U. zu Köln, Köln, Germany
- H02:05** *Dielectric constant and Van der Waals Binding energy of disordered polarizable systems*
B.U. Federhof, Insit. für Theoretische Physik, AACHEN, Germany
- H02:06** *Dyadic Green's functions for multilayered isotropic media*
S. Y. Tan, E. L. Tan, Block S1 School of Electrical and Electronic Engineering Nanyang Technological U., Singapore, Russia
- H02:07** *Modeling of interaction electromagnetic waves with random active media*
V.G. Spitsyn, Siberian Physical and Technical Institute Tomsk State University, Tomsk, Russia
- H02:08** *Fundamental limitation for thickness to bandwidth ratio of radar absorbers*
K. N. Rozanov, Sci. Center for Applied Problems in Electrodynamics (SCAPE), Russian Academy of Sci., Moscow, Russia
- H02:09** *Magnetic and electrical studies of Ge(4+) and Ti(4+) substituted Li-Mg ferrite*
N. Kumar, I. Kishan, Solidstate Physics Laboratory, Delhi, India ; Z. H. Zaidi, Physics Dpt, New Delhi, India
- H02:10** *Electromagnetic field interaction with a half-space with continuously time-varying conductivity*
I. Yu. Vorgul, Applied electrodynamics Dpt., Kharkov State U., Kharkov, Ukraine

J. I. P. R. 4 - Session I02

Tuesday, July 14, AM 08:40-12:20

Basic Polarimetric Concepts and Applications

Organiser : Y. Yamaguchi

Chairs : Y. Yamaguchi and D.L. Schuler

- I02:01** *Comparison of various POL-RAD and POL-SAR image feature sorting and classification algorithms*
(Overview) E. Krogager, Danish Defense Research Establishment, Copenhagen, Denmark.
- I02:02** *Resolution enhancement of the MUSIC algorithm with wave polarization*
H. Yamada, M. Yoshino, Y. Yamaguchi, Dept of Information Engineering, Niigata University, Niigata-shi, Japan.
- I02:03** *Scattering matrix of line targets aligned in the range direction*
Y. Yamaguchi, K. Kitiyama, H. Yamada, Dept of Information Engineering, Niigata University, Niigata-shi, Japan.
- I02:04** *Optimal polarimetric contrast enhancement in partially polarized scattering*
(Overview) M. Tanaka, Dept. of Electrical and Electronic Engineering, Oita University, Oita, Japan ; W.M. Boerner, Dept of Electrical Engineering and Computer Sci., University of Illinois at Chicago, Chicago, IL, USA ; H. Mott, Dept of Electrical Engineering, University of Alabama, Tuscaloosa, AL, USA.
- I02:05** *Estimation of radar objects contrast using the group of Huynen-Euler invariant polarization parameters*
V.I. Karmychev, Tomsk University of Control System and Radioelectronics, Tomsk, Russia.
- I02:06** *Suboptimum non-coherent polarimetric radar receiver canceling partially polarized clutter*
Z.H. Czyz, Telecommunications Research Institute, Warszawa, Poland.
- I02:07** *Analysis methods of experimental mueller matrices*
J. Zallat, M. P. Stoll, ENSPS Laboratoire des Sciences de l'Image de l'Informatique et de la Télédétection, Illkirch, France.
- I02:08** *Signal received by a bistatic radar from a moving target : applied to a canonical target*
O. Airiau, A. Khenchaf, J. Saillard, Lab SEI-EP CNRS 63, IRESTE, Nantes, France.

Session J02
Tuesday, July 14 AM
Microwave Scattering From Rough Surfaces
 Organiser : P. Pampaloni
 Chairs : P. Pampaloni, S. Paloscia

- J02:01 Nadir cross-section of the ocean surface in case of rain calculated by using a two-scale model*
 C. Craeye, P. Sobieski, A. Guissard, F. L. Bliven, U. Catholique de Louvain, Louvain la Neuve, Belgium
- J02:02 Synergic use of altimeter and scatterometer data for non fully developed sea-state parameters retrieval.*
 D. Lemaire, P. Sobieski, A. Guissard, U. Catholique de Louvain, Louvain-La-Neuve, Belgium
- J02:03 A Monte-Carlo code for backscattering from aground in the presence of scatterers modelling vegetation elements*
 P. Brusaglioni, M. Gai, A. Ismaelli, S. Lolli, Dept. of Physics, U. of Florence, Florence, Italy
- J02:04 Characterisation of the soil roughness and microwave backscattering based on fractal brownian description*
 M Zribi, O. Taconet, V. Ciarletti, CETP/CNRS/UVSQ, Velizy, France ; M Zribi, P. Paille, ENSICA, Toulouse, France ; P. Boissard, P. Valery, INRA-GRIGNON, France ; M. Chapron, B. Rabin, ENSEA, Cergy Pontoise, France
- J02:05 Validation of a fractal brownian modelisation of bare soil and its backscattering behaviour using SIR-C and ERASME 1994 data over Orgeval*
 M Zribi, O. Taconet, V. Ciarletti, CETP/CNRS/UVSQ, Velizy, France ; M Zribi, P. Paille, ENSICA, Toulouse, France ; P. Boissard, P. Valery, INRA-GRIGNON, France ; M. Chapron, B. Rabin, ENSEA, Cergy Pontoise, France
- J02:06 Evaluation of sensitivities of soil moisture and surface roughness parameters on SAR measurements*
 J. Shi, Inst. for Computational Earth System Sci., U. of California, Santa Barbara, USA
- J02:07 Microwave backscattering from bare rough soils : a caomparaison of experimental data and surface scattering models*
 G. Macelloni, S. Paloscia, P. Pampaloni, S. Sigismondi, Ist. di Ricerca sulle Onde Elettromagnetiche CNR, Firenze, Italy ; G. Nesti, IRSA, Varese, Italy
- J02:08 Characterization of areas contributing to Runoff with SAR images in FLOODGEN project*
 A. Remond, C. King, BRGM DR/GIG, Orléans, France ; F. Bonn, J. Smith, CARTEL U. de Sherbrooke, Quebec, Canada

Session K02
Tuesday, July 14 AM
Oblique Incidence Ionospheric Sounding : Theory and Observations
 Organiser : L. R. Cander
 Chairs : L. R. Cander, M. F. Levy

- K02:01 Ionospheric propagation modelling with the parabolic wave equation*
 M.F. Levy, Radio Communications Research Unit, Rutherford Appleton Laboratory, Oxon, UK
- K02:02 On the methods for the description of HF propagation in the real ionosphere*
 N. N. Zernov, Inst. of Radiophysics U. of St.Petersburg, St.Petersburg, Russia
- K02:03 Statistical characterization of the time variability in midlatitude single tone HF channel reponse*
 F. Arıkan, Dpt of Electrical and Electronics Engineering, Hacettepe U., Beytepe, Ankara, Turkey ; C. B. Erol, Dpt of Electrical and Electronics Engineering, Baskent U., Ankara, Turkey
- K02:04 Short-term ionospheric forecasting over Europe*
 L. R. Cander, M.I. Dick, M. F. Levy, Rutherford Appleton Laboratory, Radio Communications Research Unit, Oxon, UK
- K02:05 Ionospheric variability seen by oblique sounding data*
 A. Vernon, L. R. Cander, Rutherford Appleton Laboratory, Oxon, UK

- K02:06** *Results from the 1997-98 UK oblique sounding campaigns*
R. A. Bamford, Rutherford Appleton Laboratory, Oxon, UK ; M. Lissimore, DERA Defense Evaluation and Research Agency, Worcs, UK
- K02:07** *Theory of ionospheric propagation : distance between theory, experience and model*
C. Goutelard, LETTI U. Paris-Sud, Orsay, France
- K02:08** *Extremely low power vertical and oblique ionospheric sounding*
C. Goutelard, C. Pautot, LETTI U. Paris-Sud, Orsay, France

Session L02
Tuesday, July 14 AM
Biological Effects
Organisers : J. Wiart, B. Veyret
Chairs : J. Wiart, B. Veyret

- L02:01** *Key issues for the evaluation of interactions between a hand-held radiotelephone and the user*
C. Grangeat, Alcatel Alsthom Recherche, Marcoussis, France
- L02:02** *Exposure device for applying RF/microwave fields to biological preparations*
Ph. Leveque, L. Laval, B. Jecko, I.R.C.O.M, Faculté des Sciences, Limoges, France
- L02:03** *Numerical and experimental evaluation of E-field and absorbed power in the Pelvic region using a bone-equivalent phantom*
J. Nadobny, P. Wust, H. Föhling, R. Felix, Strahlenklinik und Poliklinik, Berlin, Germany; D. Stalling, M. Seebass, P. Deufilhard, Konrad-Zuse-Zentrum für Informationstechnik Berlin (ZIB), Berlin, Germany
- L02:04** *Effects of GSM microwaves on lipoperoxidation and DNA fragmentation in the brain of rats*
R. Anane, B. Veyret, Laboratoire PIOM, ENSCPB, Tlence, France
- L02:05** *Health effects of mobile phones : human studies*
R. de Seze, L. Miro, Laboratoire de Biophysique Médicale, Faculté de Médecine, Section de Nîmes, Nîmes, France
- L02:06** *Overview of the findings from motorola-sponsored health effects research*
M. L. Swicord, J. J. Morrissey, Q. Balzano, Florida Corporate Electromagnetics Research Laboratory, Motorola, Fort Lauderdale, FL, USA
- L02:07** *Biological Effects of 900-Mhz microwave exposure : the experience of the ENEA group*
C. Marino, G. Lovisolo, Dpt. of Environment, Roma, Italy
- L02:08** *SAR distribution into homogeneous and not homogeneous phantoms and into an anatomical model of the human head generated by cellular phones*
A. Schiavoni, P. Bertotto, G. Richiardi, P. Bielli, CSELT - Centro Studi E Laboratori Telecomunicazioni S.p.A., Torino, Italia ; C. Gabriel, MCL, UK

Session M02
Tuesday, July 14 AM
Near Field 1 : from Microwaves to Optics
Workshop on Complex Media and Measurement Techniques
Organisers : J. Ch. Bolomey, J. J. Greffet
Chair : H. Cory

- M02:01** *What is the signal measured by a scanning near-field optical microscope ?*
J. J. Greffet, R. Carminati, Lab EM2C Ecole Centrale Paris, Chateauf-Malabry, France
- M02:02** *The non-resonant perturbation technique for measurements of electromagnetic fields at radio and microwave frequencies*
D. V. Land, Dpt of Physics and Astronomy, U. of Glasgow, Glasgow, UK

- M02:03** *Near-field experimental and theoretical studies of the optical signal of a half conductor plane obtained with an apertureless probe*
S. Grésillon, A. C. Boccara, Laboratoire d'Optique Physique, Ecole Supérieure de Physique et de Chimie Industrielles de la ville de Paris, Paris, France; J. C. Rivoal, U. P. et M. Curie, Centre National de la Recherche Scientifique, Paris, France; H. Cory, Electrical Engineering Dpt, Haifa, Israel
- M02:04** *Some recent developments in the theoretical investigation of near-field optical microscopy*
O. J. F. Martin, Laboratory of Field Theory and Microwave Electronics, Swiss Federal Inst. of Technology, Zurich, Switzerland
- M02:05** *Signals reconstruction from their square complex distributions*
V. Pascasio, Ist. di Teoria e Tecnica delle Onde Elettromagnetiche, Ist. U. Navale, Napoli, Italy; R. Pierri, Dpt di Ingegneria dell'Informazione, Seconda U. di Napoli, Aversa, Italy
- M02:06** *On the concept of phase in near-field optics*
R. Carminati, Lab EM2C Ecole Centrale Paris, Châtenay-Malabry, France
- M02:07** *Analysis of nonlinearly loaded antennas*
T. K. Sarkar, Dpt of ECE, Syracuse U., Syracuse, NY, USA
- M02:08** *Sampling criteria for low frequency near-field techniques*
D. Picard, J. Ch. Bolomey, Service Electromagnetisme/Supelec/CNRS, Gif sur Yvette, France

Session A03
Tuesday, July 14 PM
Scattering and Diffraction of Electromagnetic Waves
Organiser : S.-Y. Kim
Chairs : S.-Y. Kim, S. Nam

- A03:01** *Efficient representation of the rectangular waveguide and cavity Green's function*
M.-J. Park, S. Nam, Applied Electromagnetics Lab., Inst. of New Media and Communications, Seoul National U., Seoul, Korea
- A03:02** *Classification of airplane-like targets using scattering centers and RBF network*
K.-T. Kim, J.-Ho Lee, S.-H. Seok, J.-H. Jeong, H.-T. Kim, Pohang U. of Sci. and Technology, Kyung-buk, Korea; K.-I. Kwon, The Agency for Defense Development, Taejeon, Korea
- A03:03** *Effects of observation distance change in the diffraction pattern by a cylindrical air cavity*
T.-K. Lee, Dpt. of Avionics, Hankuk Aviation U., Kyunggi-do, Korea; S.-Y. Kim, Applied Electronics Lab. KIST, Seoul, Korea; J.-W. Ra, Dpt of Electrical Eng. KAIST, Taejeon, Korea
- A03:04** *A spectral domain wavelet analysis of scattering*
H. Kim, S. Kahng, S. Ju, J. Lee, Dpt. of Electrical & Computer Sci. Eng., Hanyang U., Seoul, Korea
- A03:05** *An iterative inverse scattering of a high contrast and large size object by using the FEM-LM and prior knowledge of back ground medium*
C.-S. Park, Dpt. of Electronic Engineering, Sung Kyun Kwan U., Kyungki-do, Korea; School of EECE, Donga U., Pusan, Koera
- A03:06** *Diffraction coefficients of a composite wedge consisting of perfect conductor and lossless dielectric*
S.-Y. Kim, Division of Electronics and Information Technology Korea Inst. of Sci. and Technology, Seoul, Korea
- A03:07** *Scattering anomalies by the periodic strip grating in a grouded dielectric slab*
Y.-K. Cho, Dpt. of Electronics, Kyungpook National U., Taegu, Korea; J.-W. Ra, Dpt of Electrical, Engineering, Korea Advanced Inst. of Sci. and Tech; Taejeon, Korea
- A03:08** *Electrostatic potential distribution through multiple rectangular apertures in a thick conducting plane*
H. H. Park, H. J. Eom, Dpt. of Electrical Engineering, Korea Advanced Inst. of Sci. and Technology, Taejeon, Korea
- A03:09** *Multiple scattering and diffraction of x-ray gaussian beam by many atom distributions*
Y. Miyazaki, S. Tujimoto, Dpt. of Information and Computer Sci., Toyohashi U. of Technology, Toyohashi, Japan

Session B03
Tuesday, July 14 PM
Electromagnetic inverse scattering problems
Organisers : Ch. Pichot, S. Caorsi
Chairs : Ch. Pichot, T. Habashy

- B03:01** *One-dimensional profile inversion problems related to lossy slabs terminated by an inhomogeneous boundary*
 I. Akduman, Electrical and Electronics Engineering Faculty, Istanbul Technical U., Istanbul, Turkey
- B03:02** *Inverse scattering problem for stratified anisotropic medium*
 D. Shepelsky, D. Sheen, Global Analysis Research Center, Dpt of Mathematics, Seoul National U., Seoul, Korea ;
 A. Boutet de Monvel, Inst. de Mathématiques, U. Paris, Paris, France
- B03:03** *An inverse and optimization time domain problem for a stratified, bi-periodic and 2D medium*
 S. Alestra, E. Duceau, Dpt. Modélisation Numérique, Aerospatiale CCR, Suresnes, France
- B03:04** *Inverse scattering using FDTD*
 R.D Murch, K. Ben Letaief, Dpt of Electrical and Electronic Engineering, Hong Kong U. of Sci. and Technology, Kowloon, Hong Kong
- B03:05** *Three dimension reconstructions using a time reversal matrix method*
 S. Barraud, J.L. Dubard, D. Pompei, Laboratoire d'Electronique, Antennes et Télécommunications, Valbonne, France
- B03:06** *Time domain modeling of interferometric measurements*
 B. Houshmand, Jet Propulsion Laboratory, California Inst. of Technology, Pasadena, CA, USA
- B03:07** *Reconstruction of complex permittivity profiles of maxwellian scatterers by means of multiple frequencies of irradiation. A finite element -sensitivity analysis technique*
 I.T. Rekanos, T.D. Tsiboukis, Division of Telecommunications, Dpt. of Electrical and Computer Engineering, Aristotle U. of Thessaloniki, Thessaloniki, Greece
- B03:08** *Electrical characterization of materials by solving an inverse problem using the EMIR method*
 B. Pliquet, X. Ferrieres, P. Levsque, J.-C. Alliot, ONERA, Meudon, France ; B. Duchene, Laboratoire des signaux et systemes, Supélec, Gif sur Yvette, France
- B03:09** *Impedance determination for the optimization of diffraction patterns*
 D. Felbacq, J.L. Roumiguieres, LASMEA, U. Blaise Pascal, Aubière, France ; P. Vincent, U. d'Aix-Marseille III, Marseille, France
- B03:10** *Refractivity modeling for the inverse medium problem in tropospheric electromagnetic propagation*
 L. Ted Rogers, Propagation Division Space and Naval Warfare Systems Center, San Diego, CA, USA
- B03:11** *Some numerical approaches to solving the inverse problems of electromagnetoelasticity*
 A. V. Avdeev, E. V. Goruynov, V. I. Priimenko, Inst. of Computational Mathematics and Mathematical Geophysics (Novosibirsk Computing Center), Novosibirsk, Russia

Session C03
Tuesday, July 14 PM
Advanced Techniques for Absorbing Boundaries in Computational Electromagnetics
Organiser : J. P. Berenger
Chairs : J. P. Berenger, F. Jecko

- C03:01** *Anisotropic perfectly-matched absorber for unstructured grid truncation*
 Li Zhao, Dept of Electrical and Computer Engineering, U. of Arizona, Tuscon, USA ; C. Cangellaris, Dpt of Electrical and Computer Engineering U. of Illinois at Urbana - Champaign, Urbana, USA
- C03:02** *PML for curvilinear coordinates via complex coordinate system*
 F. Teixeira, W.C. Chew, Electromagnetics Laboratory, Dpt of Electrical and Computer Engineering, U. of Illinois, Urbana, IL, USA

- C03:03** *A new look at Berenger's absorbing boundary conditions : extension to 3D magnetic and dielectric anisotropic media*
I. Villo-Perez, S. Gonzales Garcia
- C03:04** *Conductivity profile optimization for the PML ABC in FDTD*
E. L. Miller, C. M. Rappaport, E. A. Marengo, Center for Electromagnetics Research, Northeastern U., Boston, MA, USA
- C03:05** *Perfectly matched layers in the transmission line matrix method*
D. Pompei, J. L. Dubard, Electronics, Antennas and Telecommunications Laboratory, Nice Sophia Antipolis U., Valbonne, France
- C03:06** *The application of the complementary operators theory to non-analytic boundary conditions and unstaggered FDTD mesh*
O. M. Ramahi, Digital Equipment Corporation, Maynard, MA, USA
- C03:07** *PML for paraxial electromagnetic codes*
A.A. Zaporozhets, Rutherford Appleton Laboratory, Didcot, UK,
- C03:08** *Implementation of the PML in the parabolic equation*
A. Reinex, B. Jecko, IRCOM-UMR CNRS 6615, Equipe Electromagnetisme, Faculte des Sciences, Limoges, France ; J. P. Berenger, ETCA/CAD, Arcueil, France
- C03:09** *Exact "absorbing" boundary conditions for FDTD algorithms in non classic domains*
A. O. Perov, Y. K. Sirenko, N. P. Yashina, Inst. of Radiophysics and Electronics, Ukrainian National Academy of Sci., Kharkov, Ukraine
- C03:10** *A comparative study of the PML absorbing boundary condition and the higher-order absorbing boundary condition*
S. Leonhard, Dpt. of Theoretical Electrical Engineering and Optical Communications, U. of Kaiserslautern, Kaiserslautern
- C03:11** *Equivalence of linear and exponent time-stepping forms in PML medium*
Y.W Liu, City U. of Hong Kong, Dpt of Electronic Engineering, Kowloon, Hong Kong

Session D03
Tuesday, July 14 PM
Novels Mathematical Methods in Electromagnetics
Organiser : Yu. V. Shestopalov
Chairs : Yu. V. Shestopalov, Kazuya Kobayashi

- D03:01** *An analysis of modal coupling and cutoff properties of open and closed-boundary waveguides using singularity theory*
G. W. Hanson, Dpt. of Electrical Engineering and Computer Sci., U. of Wisconsin-Milwaukee, Milwaukee, Wisconsin, USA ; A. B. Yakovlev, Ansoft Corporation, Four Station Square, Pittsburgh, PA, USA
- D03:02** *Plane wave diffraction by a strip with different surface impedances*
E. I. Veliev, Inst. of Radiophysics and Electronics, Ukrainian Academy of Sci., Kharakov, Ukraine ; K. Kobayashi, M. Ogata, Dpt. of Electrical and Electronics Engineering, Chuo U., Tokyo, Japan ; S. Koshikawa, Antenna Giken Co., Omiya, Japan
- D03:03** *Pseudodifferential equations method for electromagnetic screen problem in R3*
Y. G. Smirnov, Dpt of Mathematics, Pensa State Technical U., Penza, Russia
- D03:04** *Explicit expressions for the spectrum of normal waves of an open slot waveguide*
E. V. Chernokozhin, Moscow State U., Advanced Education and Sci. Center, Moscow, Russia
- D03:05** *Reconstruction of a singular potential in the multidimensional Schrodinger equation with applications to the wave scattering*
V.S. Serov, Dpt. of Computational Mathematics and Cybernetics (BMK), Moscow State U., Moscow, Russia
- D03:06** *Method based on singular integral equations for solving nonhomogeneous diffraction problem*
A. S. Illinski, A. B. Samokhin, U. U. Kapustin, Dpt. of Computational Mathematics and Cybernetics, Moscow State U., Moscow, Russia

- D03:07** *Analytical regularization methods in diffraction theory*
Y. A. Tuchkin, Inst. of Radiophysics and Electronics, Ukrainian National Academy of Sci., Kharkov, Ukraine
- D03:08** *High-Q and low-Q open resonators : methods, results, and perspectives*
Yu. V. Shestopalov, Dpt. of computational Mathematics and Cybernetics, Moscow State U., Moscow, Russia
- D03:09** *Projection method to investigate the two dimension problem of the wave scattering by a metallic cylindre of arbitrary shape in the high frequency domain*
V.F. Apelt'cin, Dpt. of Comput. Math and Cybern. of Moscow State U., Moscow, Russia
- D03:10** *Exact, uniform asymptotic, and numerical constructions of Helmholtz operator symbols*
L. Fishman, Naval Research Laboratory, MS, USA
- D03:11** *Surface and leaky guided waves on dielectric fibres of arbitrary cross-section*
E.M. Karchevskii, Russia, Kazan State U., Kazan, Russia
- D03:12** *Scattering by an infinite grating with a groove structure of a finite size*
E. Lipachev, Dpt. of Mechanics and Mathematics, Kazan State U., Kazan, Russia
- D03:13** *On the electromagnetic scattering problem for a perfectly conducting infinite cylinder contained in the wedge*
Y. Podlipenko, Faculty of Cybernetics, Kiev U., Kiev, Ukraine

Session E03
Tuesday, July 14 PM
Genetic Algorithm and Optimization
Organiser : H. J. Mametsa
Chair : H. J. Mametsa, Y. Rahmat-Samii

- E03:02** *Optimization design tools in engineering electromagnetics*
Y. Rahmat-Samii, Dpt of Electrical Engineering, U. of Californie Los Angeles, Los Angeles, CA, USA
- E03:03** *One the use of the genetic algorithm for RCS modelling*
A. Dorey, THOMSON C.S.F Applications Radar, Vlizy-Villancoublay, France
- E03:04** *Numerical solution to the electromagnetic scattering by nonlinear objects by using genetic algorithms*
S. Caorsi, Dpt. of Electronics, U. of Pavia, Pavia, Italy ; A. Massa, M. Pastorino, Dpt of Biophysical and Electronic Engineering, U. of Genoa, Genoa, Italy
- E03:05** *A Wire antenna designed for use on the lossy-earth interface using a genetic algorithm*
A. J. Terzuoli, Air Force Inst. of Technology, Dayton, OH, USA
- E03:06** *Pattern synthesis of antenna array by an improved genetic algorithm using non-uniform probability density function*
C.-L. Li, T.-A. Chen, Eelctrical Engineering Dpt., Tamkang U., Taipei Hsien, Taiwan
- E03:07** *A new priority rotation methodology to improve the performance of genetic algorithms*
G. Raghavendra Rao, K. Chidananda Gowda, Dpt of Computer Sci. an Engineering, S. J. College of Engineering, Mysore, India
- E03:08** *Design of optical devices using-genetic algorithms*
J. C. C. Carvalho, J. C. W. A. Costa, Dpt de Engenharia Elétrica - Centro Tecnológico da UFPA, Belém/PA, Brazil
- E03:09** *Design of ultra-wideband EMC antennas using the genetic algorithm*
Z. Altman, J. Wiart, S. Chaillou, B. Fourestié, France Télécom, CNET, Issy les Moulineaux, France ; R. Mittra, Pennsylvania State U. Park, PA, USA
- E03:01** *Genetic algorithm optimization for RCS scatterer model*
H.J. Mametsa, ONERA-CERT/DEMR, Toulouse, France ; P. Lèguillette, Ecole de L'Air, Salon de Provence, France

Session F03
Tuesday, July 14 PM
Aperture Antennas

- F03:01** *Phase error in dual-ridged horn antennas*
C. D. McCarrick, Seavey Engineering Associates, Inc., MA, USA
- F03:02** *A new type miniaturized X-Ku band conical horn and helix combination antenna*
L. Maoheng, L. Guogong, L. Wen, Z. Shan Li, Harbin Engineering U., Dpt of Electronic Engineering, China
- F03:03** *Offset characteristics of elliptic fresnel-zone-plate lens*
T. Onodera, T. Hoashi, E. Kimura, Dpt. of Electronic Engineering, Kumamoto Inst. of Technology, Kumamoto, Japan
- F03:04** *Phase space analysis and aperture theory: an alternative to Gabor series*
D. Luga, I. A. Ehtezazi, C. LETROU, INT / EPH, Evry, France ; D. Luga, Observatoire de Paris, DEMIRM, Paris, France
- F03:05** *The effect of the first sidelobes of the feed antenna on the radiation pattern of the 2D circular reflector antenna system.*
T. Oguzer, Dpt. of Electrical and Electronics Eng., Dokuz Eylul U, Buca, Izmir, Turkey
- F03:06** *Radiation fields of a complex source in a circular cylindrical radome with metal grating*
A. Altintas, S. Ouardani, V. Yurchenko, Bkent U., Dpt. of Electrical and Electronics Engineering, Ankara, Turkey ;
V. Yurchenko, Inst. of Radiophysics and Electronics National Academy of Sci., Kharkov, Ukraine
- F03:07** *Radioholographic adjustement of the 64-meter russian reflector antenna in medvezhy ozera*
A. V. Kalinin, Radiophysical Research Institute, Nizhny Novgorod, Russia
- F03:08** *Small flat multi-panel reconfigurable reflector antenna : theoretical investigation*
S. Phermphoonwatanasuk, C. Wai yapattanakorn, Dpt. of electrical Engineering , Chulalongkorn U., Bangkok, Thailand
- F03:09** *Scanning dual reflector antenna with rotating curved subreflector*
M. Edita de Lorenzo, Antonio G. Pino, Dpt. Tecnologias de las Comunicaciones, E.T.S.I.T, U. de Vigo, Vigo, Spain

Session G05
Tuesday, July 14 PM
Passive and Active Optical Waveguides

- G05:08** *Optimum self phase modulation profile for nonlinear transmission recovery in twin core optical couplers with loss*
K. Z. Nobrega, Dpt de Engenharia Elétrica, Centro de Tecnologia, U. Federal do Ceará, Ceará, Brazil ;
A. S. B. Sombra, Laboratório de Óptica não Linear e Ciência dos Materiais (LONLCM) Dpt de Física, U. Federal do Ceará, Ceará, Brazil
- G05:09** *Multifunctional two-electrode Fabry-Perot device*
Y. Boucher, J.-M. Boucher, ENIB Laboratoire RESO, Brest, France
- G05:10** *Coupled-Mode analysis of bent three-dimensional optical structures*
M. Miriannashvili, K. Ono, M. Hotta, Dpt of Electrical and Electronic Engineering, Dpt Faculty of Engineering Ehime U., Matsuyama, Japan
- G05:11** *2-Mode design theory for symmetric multi-branch optical dividers*
K. Ono, M. Hotta, Dpt of Electrical and Electronic Engineering, Dpt Faculty of Engineering Ehime U., Matsuyama, Japan ; I. Nagano, NEC Software Shikoku Co., Matsuyama, Japan
- G05:12** *System simulation of digital optoelectronic circuit detrimental effects*
P. Vigier, C. Berthelemot-Aupetit, J. M. Dumas, U. de Limoges, ENSIL - Parc d'Ester Technopole, Limoges, France
- G05:13** *Femto second dynamic characteristics of integrated optical amplifiers using ER-doped garnet film waveguides*
Y. Miyazaki, R. Balasubramanian, Dpt. of Information and Computer Sci., Toyohashi U. of Technology, Toyohashi, Japan

Session G06
Tuesday, July 14 PM
Electrodynamics of High Tc Superconductors
 Organiser : G. P. Srivastava
 Chairs : G. P. Srivastava, M. Pyee

- G06:01** *Surface impedance of high Tc superconductors using traditional and modified phenomenological models : an overview*
 G.P. Srivastava, V. Mathew, Dpt of Electronic Sci., U. of Delhi South Campus, New Delhi, India ; A. G. Vedeshwar, Dpt of Physics and Astrophysics, U. of Delhi, Delhi, India
- G06:02** *Electrodynamic behavior of Ag-doped YBCO films grown by laser ablation*
 J. Kim, K.-Y. Kang, Research Dpt, Electronics and Telecommunications Research Inst., Taejon, South Korea
- G06:03** *Analysis of HTS microwave planar circuits: a general computational scheme*
 V. Mathew, Dpt of Electronic Sci., U. of Delhi South Campus, New Delhi, India ; A. G. Vedeshwar, Dpt of Physics and Astrophysics, U. of Delhi, Delhi, India
- G06:04** *Surface resistance of Ag-doped YBa₂Cu₃O₇ thin films*
 J. Mazierska, M. V. Jacob, Dpt of Electrical and Computer Engineering, James Cook U., Townsville, Australia ; J. Kim, K.-Y. Kang, Research Dpt, ETRI, Yusong, Taejon, S. Korea ; M. V. Jacob, G. P. Srivastava, Dpt of Electronic Sci., Delhi U. South Campus, New Delhi, India
- G06:05** *Theoretical analysis of superconducting transition temperature in fullerenes*
 S.P. Tewari, K. Bera, P. Silotia, Dpt of Physics and Astrophysics, U. of Delhi, Delhi, India
- G06:06** *Review of different techniques for tuning microstrip circuits based on SHTC thin films*
 S. Sautrot, M. Pyée, L.D.I.M, Tour 12-22, Univ. Paris VI, Paris, France
- G06:07** *Modelling the electrodynamic response of composite superconducting structures in the mixed state*
 Mark W. Coffey, General Dynamics Information Systems, USA

Session H03
Tuesday, July 14 PM
Composite Material Modeling II
Workshop on Complex Media and Measurement Techniques

- H03:01** *Effects of a finite screening length on the absorption of electromagnetic waves*
 J.-J. Niez, Service de Physique Nucléaire, CEA, Bruyères le Châtel, France ; R. Balian, Service Physique Théorique, Gif-sur-Yvette, France
- H03:02** *To the electrodynamics of crystalline media with a randomly varying parameters*
 G. V. Jandieri, Zh. M. Diasamidze, V.D. Glonti
- H03:03** *Bulk conductivity of two-phase composites with randomly-distributed spheroidal inclusions*
 N. Harfield, School of Physical Sci., Dept. of Physics, U. of Surrey, Guilford, Surrey, England
- H03:04** *Frequency behavior of percolating systems*
 R. A. Gerhardt, School of Materials Science and Engineering, Georgia Institute of Technology, Atlanta, USA; D. S. McLachlan, Dpt. of Physics, U. of Witwatersrand, Johannesburg, South Africa
- H03:05** *Magneto-optical properties of metal-dielectric composites with a periodic microstructure*
 Y. M. Strelniker, D. J. Bergman, School of Physics and Astronomy, Raymond and Beverly Sackler Faculty of Exact Sci., Tel Aviv U., Tel Aviv, Israel
- H03:06** *Propagation characteristics of multiple-scattered polarised light in random media*
 K.I. Hopcraft, B. P. Abilitt, E. Jackman, P. C. Y. Chang, J. G. Walker, Dpt of Theoretical Mechanics U. of Nottingham, Nottingham ; D. L. Jordan, G. D. Lewis, Defense Research Agency, Malvern Worcestershire, UK
- H03:07** *The design principles and measurement of surface wave absorbing materials*
 F C Smith, Dpt of Electronic Engineering, U. of Hull, HU6 7RX, UK ; S. Y. M. R. Stroobandt, ESAT-TELEMIC, K. U. L. EUVEN, Heverlee, Belgium

- H03:08** *Group theoretical approach to complex and composite media description*
V. Dmitriev, U. Federal of Para, Belem-PA, Brazil
- H03:09** *Group theoretical methods for eigenvalue problems of symmetrical and composite homogeneous media*
V. Dmitriev, U. Federal of Para, Belem-PA, Brazil
- H03:10** *Reflection properties of magneto-optic grating in comparison with magneto-optic ultrathin films*
D. Ciprian, K. Postava, J. Pistora, Dpt. of Physics, Technical Univ. Ostrava, Ostrava Poruba, Czech Republic
- H03:11** *Fractal Superlattices: A Frequency Domain Approach*
A.D. Jaggard, Dpt. of Mathematics, Wheaton College, Wheaton, U.S.A ; Dwight L. Jaggard, Moore School of Electrical Engineering, Complex Media Laboratory, U. of Pennsylvania, Philadelphia, USA.
- H03:12** *Remote characterization of fractal superlattices using wavelets*
Herve Aubert, Ecole Nationale Supérieure d'Electrotechnique, d'Electronique, d'Informatique et d'Hydraulique, Institut National Polytechnique, Toulouse, France; Dwight L. Jaggard, Complex Media Laboratory, Moore School of Electrical Engineering, School of Engineering and Applied Science, Philadelphia, USA.

J. I. P. R. 4 - Session I03
Tuesday, July 14, PM 13:40-17:20
POL-SAR Image Processing
 Organiser : J.S. Lee
 Chairs : J.S. Lee and T.L. Ainsworth

- I03:01** *POL-SAR speckle filtering and terrain classification - an overview*
(Overview) J.S. Lee, Remote Sensing Division, Naval Research Laboratory, Washington, DC, USA.
- I03:02** *Interpretation of high resolution polarimetric SAR data*
E. Krogager, Danish Defense Research Establishment, Copenhagen, Denmark ; J. S. Lee, T. L. Ainsworth, Remote Sensing Div., Naval Research Laboratory, Washington, DC, USA ; S. R. Cloude, AEM, St Andrews, Scotland ; W.M. Boerner, Dept of Electrical Engineering and Computer Sci., University of Illinois at Chicago, Chicago, IL, USA
- I03:03** *High-resolution polarimetric SAR for littoral remote sensing*
T. L. Ainsworth, J. S. Lee, Remote Sensing Div., Naval Research Laboratory, Washington, DC, USA ; E. Krogager, Danish Defense Research Establishment, Copenhagen, Denmark.
- I03:04** *What eigenvalues and eigenvectors can offer in decomposition of polarimetric Stokes matrix*
Y. Dong, School of Geomatic Engineering, University of New South Wales, Sydney, Australia
- I03:05** *Terrain DEM extraction and azimuthal-slope corrections using polarimetric SAR data*
(Overview) D. L. Schuler, J.S. Lee, T. L. Ainsworth, Remote Sensing Division, Naval Research Laboratory, Washington, DC, USA.
- I03:06** *Unsupervised classification of polarimetric SAR images by applying target decomposition and complex Wishart distribution*
J.S. Lee, M. R. Grunes, T. L. Ainsworth, L. Du, D. L. Schuler, Remote Sensing Division, Naval Research Laboratory, Washington, DC, USA ; S.R. Cloude, AEM Ltd., St Andrews, Scotland.
- I03:07** *POL-InSAR imaging and applications to Geo/Eco-Environmental stress change monitoring*
W.M. Boerner, Dept of Electrical Engineering and Computer Sci., University of Illinois at Chicago, Chicago, IL, USA
- I03:08** *Speckle well modeled by Mellin transform : application to SAR images*
J. Nicolas, A. Maruani, Dpt. IMA, Ecole Nationale Supérieure des Télécommunications, Paris, France

Session J03
Tuesday, July 14 PM
Microwave Remote Sensing of Snow and Ice
 Organiser : H. Rott
 Chairs : H. Rott, C. Maetzler

- J03:01** *Microwave emission model of a layered snowpack*
 A. Wiesmann, C. Mätzler, Inst. of Applied Physics, U. of Bern, Bern, Switzerland
- J03:02** *Microwave emission model of layered snowpacks applied to melt-refreeze cycles*
 C. Mätzler, A. Wiesmann, Inst. of Applied Physics, U. of Bern, Bern, Switzerland
- J03:03** *The use of 85GHz SSM/I data for snow parameter estimation in the SNOW-TOOLS project*
 A.P. Standley, A. R. Harrison, Centre For Remote Sensing U. of Bristol, Bristol, England
- J03:04** *Image fusion techniques using SAR and EO imagery for snow cover mapping in the Swiss Alps*
 J. Piesbergen, H. Haefner, Remote Sensing Laboratories (RSL), Dpt. of Geography, U. of Zurich, Zurich, Switzerland
- J03:05** *Study of snowpack conditions limiting application of the developed SAR algorithms for water equivalent and wet snow mapping from observed and simulated ERS-1 and Radarsat backscattering coefficients*
 J. P. Fortin, M. Bernier, N. Baghdadi, Y. Gauthier, INRS-Eau, Ste-Foy, Québec, Canada ; J. P. Dedieu, LAMA-CNRS, Grenoble, France ; R. Gauthier, VIASAT Géo-technologies Inc., Montréal, Québec, Canada ; P. Vincent, Hydro-Québec, Montréal, Québec, Canada
- J03:06** *EQ-EAU: an operational monitoring prototype for snow-water equivalent estimation from radarsat images*
 M. Bernier, J. P. Fortin, Y. Gauthier, J. Fitzback, F. Gendron, A. Royer, INRS-Eau, Ste-Foy, Québec, Canada ; R. Gauthier, Hydro-Québec, Montréal, Quebec, Canada ; L. Dube, P. Vincent, VIASAT Géo-Technologies Inc., Montréal, Québec, Canada
- J03:07** *Classification of snow scattering behaviour using polarimetric decomposition theorems*
 L. Ferro-Famil, T. Landeau, E. Pottier, J. Saillard, IRESTE, U. of Nantes, SEI Laboratory, EP CNRS 63, Nantes, France ; J. P. Dedieu, Remote Sensing - GIS Team - LAMA - CNRS, Grenoble, France
- J03:08** *Characterization of snow and ice by means of SIR-C/X-SAR and AIRSAR data*
 D. Floricioiu, H. Rott, Inst. of Meteorology and Geophysics, U. of Innsbruck, Austria
- J03:11** *Seasonal evolution of the 1988-89 Northern great plains snow pack from satellite passive microwave observations*
 N.M. Mognard, CESBIO-CNES, U. of Puget Sound, Tacoma, USA ; E. G. Josberger, USGS-Ice and Climate Project, U. of Puget Sound, Tacoma, USA ; P. Gloersen, Oceans and Ice Branch, Laboratory for Hydrospheric, Greenbelt, USA

Session K03
Tuesday, July 14 PM
Remote Sensing of Natural Media
 Organiser : F. Yanovsky
 Chairs : F. Yanovsky, A. Nosich

- K03:01** *Clear air attenuation maps for the United Kingdom at millimeter window frequencies*
 O. Davies, A. Papatsoris, U. of York, Dpt. of Electronics, York, UK
- K03:02** *A treasure trough of data : plans for the utilization of the DOE-ARM data-stream for cloud studies*
 J. Verlinde, E. E. Clothiaux, D. M. Babb, J. Mather, R. Marchand, N. L. Miles, T.P. Ackerman, Pennsylvania State U., USA
- K03:03** *Influence of clouds and precipitation on the third Stokes parameter microwave emission from the system «atmosphere-ocean» observed from space*
 B. G. Kutuza, G. K. Zagorin, Academy of Sci., Moscow, Russia ; A. Hornbostel, A. Schroth, Inst. Fuer Hochfrequenztech., Germany

- K03:04** *The influence of atmosphere turbulence on spectrum fluctuations of intensity of reflective non-monochromatic signal*
A. G. Gorelik, V. V. Frolov, Moscow State Academy of Sci., Moscow, Russia
- K03:05** *Optical properties of unspherical and oscillating raindrops*
V.V. Sterlyadkin, A. V. Tarasenko, Moscow State Academy of Instrument Engineer., Moscow, Russia
- K03:06** *Application of Doppler-correlation principle to wind measurements*
V.V. Sterlyadkin, A. G. Gorelik, A. U. Kotov, Moscow State Academy of Instrument Engineer., Moscow, Russia
- K03:07** *A model of atmospheric turbulence which takes into account the effect of imperfect response of scatterers into the turbulent contribution to Doppler spectrum*
F. J. Yanovsky, U. of Civil Aviation, Kiev, Ukraine
- K03:08** *Investigations of the influence of various meteorological parameters on the statistical characteristics of the radar signal*
A.L.Knyazev, Moscow State Academy of Instrument Engineer., Moscow, Russia
- K03:09** *Wave pattern of a guided radar system*
N. Blaunstein, Z. Dank, Ben-Gurion U. of the Negev, Israël ; M. Zilbershtein, Magal Security, Ltd., Israël
- K03:10** *Modeling reflector antennas in the presence of earth*
A. I. Nosich, Laboratory of Computational Electromagnetics Inst. of Radiophysics and Electronics, Ukrainian Academy of Sci., Kharkov, Ukraine ; S. V. Boriskina, Dpt Radiophysics, Kharkov State U., Kharkov, Ukraine ; A. Altinta, Dpt Electrical and Electromagnetics Engr. Bilkent U., Ankara, Turkey
- K03:11** *Electromagnetic and scalar waves diffraction by axially symmetrical system of circular strip*
Y.A. Tuchkin, Insti. of Radiophysics and Electronics, Kharkov, Ukraine ; F.J.Yanovsky, Kiev International U. of Civil Aviation, Kiev, Ukraine; V. V. Veremey, Pennsylvania State U., USA ; E. Karacuha, GIT Gebze Insti. of Technology, Turkey
- K03:12** *Meteorological application of dual-polarization radars*
A. B. Shupiaty, Central Aerological Observatory - CAO Dologoprudny, Moscow Region, Russia
- K03:13** *The adaptative threshold data processing for buried object detection problem*
I. Kaploun, T. Nesterov, V.Sazonov, Radiotechnical Inst., Moscow, Russia

Session L03
Tuesday, July 14 PM
Biological Effects II

- L03:01** *A hybrid method of moments / method of auxiliary sources (MoM/MAS) technique applied to the calculation of the electromagnetic field generated by a hand-held transceiver in various head models*
K.S. Nikita, G. S. Stamatakis, D. Economou, N. K. Uzunoglu, National Technical U. of Athens Dpt of Electrical & Computer Engineering, Athens, Greece
- L03:03** *The parameters of the bioinformational channel on longitudinal electromagnetic waves*
V. I. Afromeev, E. I. Nefyodov, A. A. Protopopov, A.A. Khadartsev, A.A. Yashin, Research Inst. of Modern Medical Technologies, Tula, Russia
- L03:04** *Cellular phones, user interactions : effect of clothes metallic glasses and jewels on the far field pattern*
L. Ahlonsou, D. Picard, J. Ch. Bolomey, Service Electromagnetisme/ Supelec/ CNRS, Gif sur Yvette, France

Session L04
Tuesday, July 14 PM
Wireless Sensor and Communications Techniques I
 Organisers : A. Springer, R. Weigel
 Chair : R. Weigel

- L04:01** *The near range radar network (NRN) as an example for a multi-sensor-system with autonomous communication links*
 B. Röde, K.-H. Bethke, A. Schroth, DLR Oberpfaffenhofen, Germany
- L04:02** *Millimeter-wave communication and sensor systems : transceiver design and technological requirements*
 J. Wenger, Daimler-Benz Research Center, Ulm, Germany ; H. Meinel, Daimler-Benz Aerospace AG, Ulm, Germany
- L04:03** *Planar leaky-wave antennas for mobile communication systems*
 E. Schmidhammer, J. Detlefsen, TU München, Lehrstuhl für Hochfrequenztechnik, München, Germany
- L04:04** *New SAW-convolver techniques for demodulation in high-speed spread-spectrum communications*
 M. Hikita, C. Takubo, K. Asai, Central Research Lab., Hitachi Ltd., Kokubunji-shi, Tokyo, Japan
- L04:05** *Implementation of binary orthogonal keying schemes using SAW chirp filters for robust wireless LAN applications*
 A. Springer, W. Gugler, M. Huemer, R. Weigel, U. of Linz, Inst. for Communications and Information Engineering, Linz, Austria
- L04:06** *New possibilities of SAW devices for passive remote sensing and identification*
 M. Goroll, W. Buff, T. Vandahl, M. Rusko, J. Ehrenpfordt, St. Klett, TU Ilmenau, Inst. of Solid State Electronics, Ilmenau, Germany
- L04:07** *Techniques for interrogation of passive SAW sensors*
 A. Pohl, TU Vienna, Applied Electronics Laboratory, Vienna, Austria

Session M03
Tuesday, July 14 PM
Near Field 2 : Near-Field Optics
Workshop on Complex Media and Measurement Techniques
 Organisers : H. Cory, J. J. Greffet
 Chairs : J.J. Greffet, U.C. Fisher

- M03:01** *Optical transmission lines-comparison between the optical and the microwave frequency ranges*
 I.V. Shvets, R. Kantor, Physics Dpt, Trinity College, Dublin 2, Ireland ; C. Durkan, Dpt of Engineering, Cambridge U., Cambridge, UK
- M03:02** *Near field optical imaging of light propagation in waveguide devices*
 J. M. Moison, F. Mignard, F. Barthe, S. Bourzeix, France Telecom, CNET/DTD Laboratoire de Bagneux, Bagneux, France
- M03:03** *Polarisation resolved measurements of mode structures of vertical cavity surface emitting laser diodes investigated with a SNOM*
 O. Hollricher, M. Fischer, R. Brunner, P. Spitzig, O. Marti, U. Ulm, Abt. Experimentelle Physik, Ulm, Germany
- M03:04** *Reflection-mode near-field optical microscopy using a scattering probe tip*
 G. Wurtz, R. Bachelot, P. M. Adam, O. Bergossi, J.-L. Bijens, S. Benrezzak, R. Laddada, H. Wioland, R. Deturche, P. Royer, Laboratoire de Nanotechnologie et d'Instrumentation Optique, U. de Technologie de Troyes, Troyes, France
- M03:05** *Are the illumination and collection modes of the scanning near-field optical microscope fundamentally different ?*
 E.R. Mendez, Division de Fisica Aplicada, CICESE, Baja California, Mexico ; J.-J. Carminiati, Laboratoire d'Energetique, Moléculaire et Macroscopique, Château-Malabry, France

- M03:06** *Role of the probe on near field detection*
F. de Fornel, L. Salomon, Laboratoire de Physique de l'U. de Bourgogne, Equipe Optique de Champ Proche, Dijon, France
- M03:07** *A model for the spatial compression of light to 10 nm dimensions in the tetrahedral tip as a basis for its function as a probe for scanning near-field optical*
U. C. Fisher, Physikalisches Inst., Westfälische Wilhelms U., Münster

Session A04

Wednesday, July 15 AM

Monte Carlo Methods for Propagation and Scattering in Natural Media

Organiser : P. Bruscaglioni

Chair : P. Bruscaglioni

- A04:01** *An overview of monte carlo methods for microwave satellite data simulation*
L. Roberti, Dip. di Elettronica, Politecnico di Torino, Torino, Italy
- A04:02** *The stochastic process of transport of light through the atmosphere and variance reduction Monte Carlo simulation of polarized multiple scattering lidar returns*
U. G. Oppel, Mathematisches Inst. der Ludwig-Maximilians-U., München, Germany
- A04:03** *Multiple scattering effect for spaceborne lidar*
C. Flesia, A. Starkov, Groupe de Physique Appliquée, U. de Genève, Genève, Switzerland
- A04:04** *Raman lidar and multiple Mie scattering*
M. Gai, Ph. I. - Physical Investigations, Florence, Italy ; P. Bruscaglioni, A. Ismaelli, Dept. of Physics, University of Florence, Italy

Session A05

Wednesday, July 15 AM

Surface Scattering Theory

Organiser : M. Saillard

Chair : J. A. De Santo

- A05:01** *Study of scattering from rough multilayers - applications to the design of light absorbers*
H. Giovannini, C. Amra, Laboratoire d'Optique des Surfaces et des Couches Minces Ecole Nationale Supérieure de Physique de Marseille, Marseille, France
- A05:02** *Coupled volume and surface scattering by random systems*
J.-J. Greffet, O. Calvo, Lab EM2C Ecole Centrale Paris, Chatenay-Malabry, France ; P. Mareschal, Dassault-Aviation, Saint-Cloud, France ; A. Sentenac, Laboratoire d'Optique des Surfaces et des Couches Minces, ENSPM, U. de Saint-Jérôme, Marseille, France ; M. Saillard, Laboratoire d'Optique Electromagnétique, U. de Saint-Jérôme, Marseille, France
- A05:03** *Exact computation of a 2-D volume and surface scattering problem*
P. Mareschal, Dassault-Aviation DTA/EM, Saint Cloud, France
- A05:04** *Scattering computations for a perfectly reflecting grating*
J. A. DeSanto, Dpt of Mathematical and Computer Sci. Colorado School of Mines, Golden, USA
- A05:05** *Influence of dielectric constant and losses on electromagnetic scattering of a fractal profile*
C. Ruiz, E. Bachelier, P. Borderies, I. Chenerie, ONERA-CERT, Toulouse, France
- A05:06** *Diffusion of electromagnetic waves from rough inhomogeneous films. Study of the coupling between surface and volume scattering*
A. Sentenac, Laboratoire d'Optique des Surfaces et des Couches Minces, ENSPM, U. de Saint-Jérôme, Marseille, France ; H. Giovannini, Laboratoire d'Optique des Surfaces et des Couches Minces Ecole Nationale Supérieure de Physique de Marseille, Marseille, France ; M. Saillard, Laboratoire d'Optique Electromagnétique, U. de Saint-Jérôme, Marseille, France

- A05:07** *Electromagnetic wave localization in disordered finite or infinite media : analysis of the localization criterion*
G. Berginc, C. Ordenovic, Thomson CSF Optronique, Guyancourt, France ; C. Bourrelly, B. Torresani, CPT, CNRS-Luminy, Marseille, France

Session B04

Wednesday, July 15 AM

Non Linear Inversion : Algorithms and Applications

Organiser : R. Pierri

Chairs : R. Pierri, O. M. Bucci

- B04:01** *Image reconstruction from TE scattering data using strong permittivity fluctuation theory*
W. C. Chew, J. L. Ma, C. C. Lu, J. M. Song, Center for Computational Electromagnetics, Electromagnetics Laboratory, Dpt. of Electrical and Computer Engineering, U. of Illinois, Urbana, USA
- B04:02** *High resolution processing algorithms for near field object detection : performance bounds and sensitivity analyses*
A. Sahin, E.L. Miller, Center for Electromagnetic Research, Northeastern, U., Boston, USA
- B04:03** *Some uses (and abuses) of reciprocity in wavefield inversion*
M. Oristaglio, T.Habashy, Schlumberger-Doll Research, Ridgefield, USA
- B04:04** *Nonlinearity and multimodality in inverse problems*
J. Scales, Dpt of Geophysics, Colorado School of Mines, Golden, USA
- B04:05** *Reconstruction of underground tunnel by using FDTD and the genetic algorithm*
H.-K. Choi, S.-K. Park, J.-W. Ra, Dpt of Electrical Eng., Korea Advanced Inst. of Sci. And Tech., Taejon, Korea
- B04:06** *Inverse scattering for 2-D buried obstacles: comparison of the TM- and TE-cases*
M. Lambert, D.Lesselier, B. Duchene, Laboratoire des Signaux et Systemes, Gif-sur-Yvette, France
- B04:07** *A formal compensation of sensor related interactions for quantitative microwave tomography*
J.Ch. Bolomey, N.Joachimowicz, O.Franza, Laboratoire des Signaux et Systemes, Gif-sur-Yvette, France
- B04:08** *3-D joint D.C. resistivity and seismic refraction tomography*
J. Zhang, Blackhawk Geometrics Inc., Golden, USA
- B04:09** *Optimization approach to reconstructing 2D dielectric objects*
A. Litman, A. Tijhuis, Faculty of Electrical Engineering, Eindhoven U. of Technology, Eindhoven, The Netherlands ; K. Belkebir, Faculté des Sci. et Techniques de St. Jérôme, Laboratoire d'Optique Electromagnétique, Marseille, France
- B04:10** *Quadratic and quadratic iterated approaches to inverse scattering*
R. Pierri, G. Leone, A. Brancaccio, R. Persico, Dip. Ing. dell'Informazione, Seconda Università di Napoli, Aversa, Italy

Session C04

Wednesday, July 15 AM

Selected Topics in Computational Electromagnetics

Organiser : J. T. Aberle

Chairs : Frank L. Whetten, David B. Davidson

- C04:01** *FDTD prediction of penetration into an airliner*
K. J. Moeller, National Aeronautics and Space Administration Langley Research Center, Hampton, USA.
- C04:02** *On the behavior of electromagnetic fields in the anisotropic PML*
J. T. Aberle, Telecommunication Research Center, Arizona State U., Tempe, Arizona, U.S.A ; D. M. Kokotoff, Dpt of Communication and Electronic Engineering, Royal Melbourne Inst. of Technology, Melbourne, Australia
- C04:03** *A generalisation of the PML with application to biaxial materials*
A. Mitchell, D. M. Kokoff, M. W. Austin, Royal Melbourne Inst. of Technology Dpt of Communication and Electronic Engineering, Melbourne, Australia

- C04:04** *Recent progress on moment method / UTD hybridization*
I. P. Theron, D.B. Davidson, Dpt. Electrical and Electronic Engineering, U. of Stellenbosch, Stellenbosch, South Africa ; U. Jakobus, Inst. Für Hochfrequenztechnik, U. Stuttgart, Germany ; F. J.C. Meyer, Electromagnetic Software and Systems, Stellenbosch
- C04:05** *On the use of attachment modes in the analysis of printed antennas*
D. M. Kokotoff, R. B. Waterhouse, Dpt of Communication and Electronic Engineering Royal Melbourne Inst. of Technology, Melbourne, Australia ; J. T. Aberle, Telecommunications Research Center, Arizona State U., Tempe, USA
- C04:06** *Teaching computational methods to undergraduates*
F. L. Whetten, Electrical Engineering Dpt., Embry-Riddle U., Prescott, AZ, USA
- M06:07** *Combined eigenvalue and circuit modelling of radio frequency heating systems*
R. I. Neophytou, A. C. Metaxas, Electricity Utilisation Group, Engineering dpt., Cambridge U., Cambridge, UK

Session D04

Wednesday, July 15 AM

Numerical Techniques

Organiser : T. K. Sarkar

Chairs : Magdalena Salazar Palma, Andreas Cangellaris

- D04:01** *Adaptive multiscale moment method for analyzing EM scattering from perfectly conducting objects*
C. Su, T. K. Sarkar, Dpt of ECE, Syracuse U., USA ; M. Salazar, Polytechnique U. of Madrid, Spain
- D04:02** *Polynomials bases and convergence in the method of moment*
G. Morvan, M. Ney, Laboratoire d'Electronique et Systèmes de Télécommunication (LEST) E.N.S.T. B, Brest, France
- D04:03** *Passive discretization and reduced-order modeling of distributed electromagnetic systems*
A. C. Cangellaris, Dpt of Electrical and Computer Engineering, U. of Illinois at Urbana-Champaign, Urbana, USA ; L. Zhao, Dpt of Electrical and Computer Engineering, U. of Arizona, Tuscon, USA
- D04:04** *Radiation/scattering from 3D conducting/dielectric structures utilizing the finite element method*
M. Salazar-Palma, L. E. Garcia-Castillo, Polytechnique U. of Madrid, Madrid, Spain ; T. K. Sarkar, Syracuse U., USA
- D04:05** *On the condition number of impedance matrix by orthogonal wavelet transformation*
C. Su, T. K. Sarkar, Dpt of ECE, Syracuse U., USA ; M. Salazar, Polytechnique U. of Madrid, Spain
- D04:06** *Low frequency electromagnetic scattering from conducting structures utilizing triangular patch modelling*
J. L. Roumiguieres, LASMEA, U. Blaise Pascal, Clermont Ferrand, France ; S. M. Rao, Auburn U., Alabama ; T. K. Sarkar, Syracuse U., New York, USA
- D04:07** *Fourth order accurate compact implicit method for the Maxwell equations*
E. Turkel, A. Yefet, School of Mathematical Sciences, Sackler Faculty of Exact Sciences, Tel-Aviv U., Israel

Session E04

Wednesday, July 15 AM

Coplanar Techniques

Organiser : G. Alquié

Chair : G. Alquié

- E04:01** *A Simple analytical model for the coplanar waveguide open-end discontinuity*
A. Bessemoulin, C. Algani, G. Alquié, V. Fouad Hanna, Laboratoire des Instruments et Systèmes - MEMO, U. P. et M. Curie, Paris, France
- E04:02** *The uniplar technology, a very convenient way to built high performance passive microwave devices*
T. Le Nadan, K. Hettak, J. P. Coupez, E. Rius, C. Person S. Toutain, Laboratoire d'Electronique et des Systèmes de Télécommunications LEST-UMR ENST de Bretagne, Brest, France

- E04:03** *Simple manufacturable rectangular waveguide to coplanar line transitions*
W. Simon, J. Borkes, I. Wolff, Inst. of Mobile and Satellite Communication Techniques, Kamp-Lintfort, Germany
- E04:04** *Inductance computation for CPW discontinuities with finite metallization thickness by hybrid finite element method*
C.-W. Chiu, Dpt. of Electronics Engineering, Minghsin Inst. of Technology, Hsinchu, Taiwan

Session E05

Wednesday, July 15 AM

Developments in the Area of the Calculations of Guided Waves and Propagation

- E05:01** *Object-oriented non-linear analysis in frequency-domain for advanced non-linear device modelling*
D. Schreurs, B. Nauwelaers, K.U.Leuven, Div. ESAT-TELEMIC, Heverlee, Belgium ; J. Rutkowski, A. Beyer, Gerhard-Mercator-U. Duisburg, Dpt of Electrical Engineering, Duisburg, Germany
- E05:02** *Using a structure description language for electromagnetic field simulation*
O. Pertz, A. Riza Kozlu, A. Beyer, Gerhard Mercator U. Duisburg Dpt of Electromagnetic Theory and Engineering, Duisburg, Germany
- E05:03** *Investigation of electromagnetic shock waves structure in anisotropic ferromagnets with preferred direction*
G. Natalia, Inst. for Problems in Mech., Russian Academy of Sci., Moscow, Russia ; A. G. Kulikovskii, Steklov Math. Inst., Russian Academy of Sci., Moscow, Russia
- E05:04** *Non-parametric models of nonlinear transmission lines*
V. R. Snournitsin, Novosibirsk State Technical U., Novosibirsk, Russia
- E05:05** *On the generalized theory of waveguide mode excitation*
E. O. Kamenetskii, Dpt. of Electrical Engineering-Physical Electronics, Faculty of Engineering., Tel Aviv U., Tel Aviv, Israel

Session E06

Wednesday, July 15 AM

Packaging

Organiser : O. Picon

Chair : O. Picon

- E06:01** *Tape automated bonding package for high speed IC's*
M. Bedouani, G. Dehaine, Bull S.A, Les Clayes sous Bois, France
- E06:02** *Quad flat package assembly performances on radio frequency range*
F. Ndagijimana, J. Chilo, LEMO/PFT-CEM, Grenoble, France
- E06:03** *New results on electromagnetic field coupling for mm-wave interconnects*
J. Kassner, W. Menzel, S. Waidmann, U. of Ulm, Microwave Techniques, Ulm, Germany
- E06:04** *Electromagnetic modelization of millimeter wave interconnections*
A. Chousseaud, F. Jecko, IRCOM, Limoges, France ; M. Lalande-Guionie, IRCOM, Brive, France ; P. Etourneau, Thomson-CSF-RCC, Colombes, France
- E06:05** *Equivalent circuit of flip-chip interconnect*
F. Gagnet, A. Mebarki, H. Baudrand, ENSEIHT, Groupe de Modélisation Microonde, Toulouse, France ; D. Bajon, SUPAERO, Laboratoire Electronique, Toulouse, France ; C. Tronche, ALCATEL TELECOM, Toulouse, France

Session F04
Wednesday, July 15 AM
Array Antennas

- F04:01** *A serially fed dual-polarized array for base-station applications*
 G. Biffi Gentili, M. Leoncini, C. Salvador, Dpt di Ingegneria Electronica, U. di Firenze, Firenze, Italy
- F04:02** *"Aperture reduction" : using aperture field eigenmodes to analyze finite arrays of aperture coupled antennas*
 M. Vrancken, G. A. E. Vandenbosch, Katholieke U. Leuven, Faculty of Engineering, Dpt of Electrical Engineering, Division ESAT-TELEMIC, Leuven (Heverlee), Belgium
- F04:03** *Multifrequency conformal printed array*
 F. Sauvat, E. Germond, DGA/DCE/CTSN/SN/TE, Toulon, France
- F04:04** *Ring array synthesis using efficient techniques of sampling circular aperture distributions*
 Said E. El-Khamy, Senior Member IEEE, Abd-El-Fatah A. Abou-Hashem, Dpt of Electrical Engineering, Faculty of Engineering, Alexandria U., Alexandria, Egypt
- F04:05** *Analysis of an active focal array fed reflector. Comparison with an active direct radiating array*
 H. Legay, ALCATEL ESPACE, Toulouse, France
- F04:06** *Active broadband array using a surface mounted monopole concept*
 J. M. Floch, L. Desclos, INSA / LCST, UPRES-A 6075 du CNRS " Structures Rayonnantes", Rennes, France
- F04:07** *Rigorous analysis of transient radiation mechanism of small multi-sector monopole Yagi-Uda array antenna using FDTD method*
 T. Maruyama, K. Uehara, T. Hori, K. Kagoshima, NTT Wireless Systems Laboratories, Japan
- F04:08** *Spatial filtering technique for radar cross section control of an array antenna*
 H. Steyskal, Concord, MA, USA ; B. Thors, L. Josefsson, Ericsson Microwave Systems AB, Sweden
- F04:09** *Fractal Arrays and Lacunarity*
 Dwight L. Jaggard, Complex Media Laboratory, Moore School of Electrical Engineering, School of Engineering and Applied Science, Philadelphia, U.S.A.; A.D. Jaggard, Dpt. of Mathematics, Wheaton College, Wheaton, USA
- F04:10** *Electrodynamic analysis of dipole lattices*
 V.V Artemiev, Y. Y. Radtsig, S.I Eminov, Novgorod State U. by Y. Mudry, Dpt of the Theoretical and Special Physics, St Petersburg, Russia

Session G07
Wednesday, July 15 AM
Microwave Components II

- G07:01** *An adaptive multigrid method for solving poissons-equation applied to a coplanar meander line*
 R. Kulke, Th. Sporkmann, I. Wolff, Inst. of Mobile and Satellite Communication Techniques (TMST), Kamp-Lintfort, Germany
- G07:02** *Multimode equivalent network representation for multiple arbitrarily shaped posts in H-Plane waveguide*
 A. Valero, M. Ferrando, Dpt. Comunicaciones ETSI Telecomunicacion U. Politecnica de Valencia, Valencia Spain
- G07:03** *Modeling of septum polarizers in ridged circular waveguides*
 A. Najid, H. Baudrand, ENSEIHT. Laboratoire d'Electronique, Toulouse, France
- G07:04** *Circularly bent slab waveguides bounded by electric walls*
 K. Ono, M. Mirianashvili, Y. Tahara, M. Hotta, Dpt of Electrical and Electronic Engineering Dpt Faculty of Engineering Ehime U., Matsuyama, Japan
- G07:05** *TM-polarized nonlinear non-Kerr-like guided waves in asymmetrical dielectric slab*
 N. Y. Grigorieva, K. A. Barsukov, Dpt. of Physics, Electrotechnical U., St.-Petersburg, Russia
- G07:06** *Electrodynamical Characteristics of Confocal Open Superconducting Resonators*
 V. Kravchenko, A. B. Kazarov, Inst. of Radio Engineering and Electronics of the Russian Academy of Sci., Moscow, Russia

Session G08
Wednesday, July 15 AM
Photonic Band Structures
Organisers : D. Maystre, G. Tayeb
Chairs : D. Maystre, G. Tayeb

- G08:01** *A new FDTD approach to study PBG structures : application to parabolic reflectors*
M. Thèvenot, A. Reineix, M. S. Denis, B. Jecko, ICOM - UMR CNRS n° 6615 - Equipe Electromagnétisme, Faculté des Sci., Limoges, France
- G08:02** *Electromagnetic scattering solution of a finite 2-D dielectric photonic band gap lattice*
D. R. Smith, N. Kroll, S. Schultz, Dpt of Physics, U. of California, California, USA ; O. J. F. Martin, Laboratory of Field Theory and Microwave Electronics Swiss Federal Inst. of Technology, Zurich, Switzerland
- G08:03** *Channel drop filters in photonic crystals*
S. Fan, P. R. Villeneuve, J. D. Joannopoulos, Dpt of Physics, Massachusetts Inst. of Technology, Cambridge, MA ; H. A. Haus, Dpt of Electrical Engineering and Computer Sci. Massachusetts Inst. of Technology, Cambridge, MA
- G08:04** *Experimental and theoretical comparison of photonic crystals transmission properties*
P. Sabouroux, G. Tayeb, D. Maystre, G. Kaul, Laboratoire d'Optique Electromagnétique Unité Propre de Recherche de l'Enseignement Supérieur, Faculté des Sci. et Techniques de St-Jérôme, Marseille, France
- G08:05** *Photonic band structure and circuit models for perfectly conducting capacitive grids*
R. C. McPhedran, N. A. Nicorovici, School of Physics, Sydney, Australia ; L. C. Botten, School of Mathematical Sci., U. of Technology, Sydney, Australia
- G08:06** *Parametric analysis of metallic photonic band-gap materials*
G. Poilasne, Ph. Pouliguen, C. Terret, LSR/LAT UPRES-A CNRS 6075, U. de Rennes 1, Rennes, France ; L. Desclos, M. Madihan, NEC Corporation, C & C Laboratories, Network Laboratories, Kanagawa, Japan
- G08:07** *Band gap properties of 2D and 3D metallic photonic crystals*
G. Tayeb, G. Guida, D. Maystre, P. Vincent, Laboratoire d'Optique Electromagnétique Unité Propre de Recherche de l'Enseignement Supérieur, Faculté des Sci. et Techniques de St-Jérôme, Marseille, France
- G08:08** *Defect states in metallic photonic band gap crystals*
M.M Sigalas, C.M Soukoulis, W. Y. Leung, S. Gupta, G. Tuttle, R. Biswas, K. M. Ho, Microelectronics Research Center, Ames Laboratory USDOE, Dpt of Physics and Astronomy, Iowa State U., Iowa
- G08:09** *Theoretical and experimental study of metallic photonic band-gap materials : a multiple scattering modeling*
F. Pessan, E. Chung, G. Ruffé, V. Vignéras-Lefebvre, J. P. Parneix, Laboratoire de Physique des Interactions Ondes-Matière (PIOM) CNRS, UMR 5501, Talence, France
- G08:10** *Localized modes in two-dimensional triangular photonic crystal*
V. Kuzmiak, Inst. of radio Engineering and Electronics, Czech Academy of Sci., Czech Republic

Session H04
Wednesday, July 15 AM
Recent Advances on Complex Materials and Related Applications
Workshop on Complex Media and Measurement Techniques
Organiser: L. Vegni
Chairs: L. Vegni, J.P. Parneix

- H04:01** *"Angular window" of propagation in wire media*
C. A. Moses, N. Engheta, Moore School of Electrical Engineering, U. of Pennsylvania, Pennsylvania, USA
- H04:02** *Radiative features of gyrotropic structures: theory and practice*
P. Baccarelli, C. Di Nallo, F. Frezza, A. Galli, P. Lampariello, "La Sapienza" U. of Rome, Dpt of Electronic Engineering, Roma, Italy
- H04:03** *Microstrip resonator on the chiroferrite substrate*
I. S. Nefedov, Inst. of Radio Engineering and Electronics, Russian Academy of Sci., Saratov, Russia

- H04:04** *Leaky modes in chiral rib waveguides*
A. L. Topa, C. R. Paiva, A. M. Barbosa, Dpt de Engenharia Electrotecnica e de Computadores, Inst. Superior Tecnico, Technical U. of Lisbon, Lisboa, Portugal
- H04:05** *On the measurement of material parameters of a general bianisotropic medium*
G. N. Borzdov, Dpt of Theoretical Physics, Byelorussian State U., Minsk Belarus
- H04:06** *On fundamental symmetry aspects in electrodynamics of microwave bianisotropic composites*
E.O. Kamenetskii, Dpt. of Electrical Engineering -Physical Electronics, Faculty of Engineering, Tel Aviv Univ., Tel Aviv, Israel
- H04:07** *Artificial magnetism of composites on the base of dielectric resonator inclusions at microwaves*
V. N. Semenenko, V. A. Chistyayev, D. E. Ryabov, Scientific Center for Applied Problems in Electrodynamics (SCAPE) IVTAN, Russian Academy of Sci., Moscow, Russia
- H04:08** *Finite element solution of the electromagnetic vector wave equation for bianisotropic media*
A. Toscano, L. Vegni, Dpt of Electronic Engineering, Third U. of Rome, Roma, Italy
- H04:09** *Nonlinear Faraday and Kerr rotation in magnetic media*
N. N. Dadoenkova, I. L. Lyubchanskii, Donetsk Physico-Technical Inst. of the National Academy of Sci. of Ukraine, Donetsk, Ukraine; A. D. Petrenko, Donetsk State Technical U., Donetsk, Ukraine
- H04:10** *Transverse propagation of plane electromagnetic waves in a gyrotropic uniaxial omega medium*
V. V. Fisanov, Siberian Physical and Technical Inst., Tomsk State U., Tomsk, Russia; D. A. Marakasov, Dpt of Radiophysics, Tomsk State U., Tomsk, Russia

J. I. P. R. 4 - Session I04

Wednesday, July 15, AM 08:40-12:20

Ultrawideband (VHF - UHF) Polarimetry

Organiser : E. Pottier

Chairs : S.R. Cloude and L. Ulander

- I04:01** *Current and future development and operation of the FOA-CARABAS VHF-SAR system*
(Overview) A. Gustavsson, H. Hellsten, L. Ulander, FOA, Linköping, Sweden.
- I04:02** *Multifrequency polarimetric radar system in the low VHF band*
A. David, C. Brousseau, Y. Louet, A. Bourdillon, Laboratoire Structures Rayonnantes et Radiocommunications, Université de Rennes 1, Rennes, France.
- I04:03** *Polarimetric RCS signatures of commercial aircraft in the HF band*
A. David, C. Brousseau, A. Bourdillon, Laboratoire Structures Rayonnantes et Radiocommunications, Université de Rennes 1, Rennes, France.
- I04:04** *Advances in RP-UWB-POL-D-InSAR technology*
(Overview) W.M. Boerner, Dept of Electrical Engineering and Computer Sci., University of Illinois at Chicago, Chicago, IL, USA
- I04:05** *Aerial target identification with a polarimetric V.H.F radar*
J. Berger, T. Landeau, E. Pottier, J. Saillard, Lab SEI-EP CNRS 63, IRESTE, Nantes, France.
- I04:06** *Some comments on parameter interpretation in radar target polarimetry*
J. R. Huynen, P. Q. Research, Los Altos Hills, California, USA
- I04:07** *Ionospheric effects on spaceborne VHF SAR performance*
P. Hoogeboom, F. Rijckenberg, TNO, Scheveningen, The Netherlands
- I04:08** *Influence of polarization on the estimation of high resolution methods*
P. Charge, Y. Wang, J. Saillard, Lab SEI-EP CNRS 63, IRESTE, Nantes, France.

Session J08
Wednesday, July 15 AM
Forest Observations by Radars : The Eufora Project
 Organiser : T. Le Toan
 Chairs : T. Le Toan, S. Quegan

- J08:01** *Radar results from EUROFA remote sensing campaign of boreal forest in Finland*
 M. Hallikainen, J. Hyypä, J. Koskinen, J. Uusitalo, T. Tares, M. Makynen, H. Hyypä, J. Poulianen, HUT , Espoo, Finland.
- J08:02** *Preliminary analysis of HUTSCAT data over Austrian pine plantations in relation with tree parameters and architecture*
 A. Beaudouin, J. M. Martinez, T. Castel, LCT, Montpellier, France ; M. Hallikainen, M. Makynen, J. Uusitalo, HUT, Espoo, Finland ; N. Floury, CESBIO, Toulouse, France.
- J08:03** *EUROFA data collection with the CARABAS-II VHF-band SAR*
 L. M. H. Ulander , B. Flood, P.O. Fröling, A. Gustavsson, H. Hellsten, T. Jonsson, B. Larsson, and G. Stenström., FOA, Linköping, Sweden.
- J08:04** *Forest structure from laser profiling*
 A. T. Manninen, M. S. Rantasuo, VTT Automation, Espoo, Finland
- J08:05** *Radar backscatter modelling of forests using a refined tree architecture model*
 N. Floury, T. Le Toan, CESBIO, Toulouse, France; Y. Caraglio, CIRAD, Montpellier, France; A. Beaudoin, LCT, Montpellier, France.
- J08:06** *A comparison of DEM and INSAR based pixel-size normalization methods for SAR data over hilly terrain*
 U. Wegmüller, Gamma A.G., Muri, Switzerland and A. Beaudoin, LCT, Montpellier, France
- J08:07** *Multidate ERS tandem data acquired over hilly forested terrain : influence of biophysical and meteorological factors*
 J.M. Martinez, A. Beaudoin, LCT, Montpellier, France; U. Wegmüller, T. Strozzi, Gamma A.G., Muri, Switzerland; T. Le Toan, CESBIO, Toulouse, France.
- J08:08** *Change detection techniques applied to forest monitoring by ERS SAR*
 S. Quegan, J. J. Yu, SCEOS, Sheffield, UK ; T. Le Toan, F. Ribbes, J. Bruniquel, CESBIO, Toulouse, France

Session K04
Wednesday, July 15 AM
SAR Interferometry : Signal Processing and Phase Unwrapping
 Organiser : R. Bamler
 Chairs : R. Bamler, H. Zebker

- K04:01** *Phase unwrapping algorithms for radar interferometry: residue-cut, least-squares, and synthesis algorithms*
 H. A. Zebker, Dpt of Geophysics and Electrical Engineering Stanford U., Stanford, UK
- K04:02** *Global minimization methods for interferometric phase unwrapping*
 R. Bamler, M. Eineder, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Oberpfaffenhofen, Weßling, Germany
- K04:03** *Signal processing as a tool for SAR and ISAR image interpretation*
 H. Maître, E. Trouvé, J. M. Nicolas, F. Tupin, Dpt IMA, ENST, Paris, France
- K04:04** *Bayesian height estimation from InSAR using a fractal prior*
 M. Datcu, G. Palubinskas, Deutsches Zentrum für Luft- und Raumfahrt (DLR) e.V. Oberpfaffenhofen, Weßling, Germany
- K04:05** *Evaluation of bayesian methods for interferometric SAR phase unwrapping*
 L. Guerriero, M. T. Chiaradia, G. Nico, A. Refice, INFN - Dipartimento Interateneo di Fisica, Bari, Italy ; G. Pasquariello, G. Satalino, S. Tramaglia, N. Veneziani, IESI, Bari, Italy

- K04:06** *SAR RAW signal simulation of urban areas*
G. Franceschetti, A. Iodice, D. Riccio, U. di Napoli Federico II, Dpt di Ingegneria Elettronica, Napoli, Italy ;
G. Franceschetti, Isti. di Ricerca per l'Elettromagnetismo e i Componenti Elettronici, Napoli, Italy
- K04:07** *Determination of city models using high resolution InSAR data*
J. Moreira, A. Keim, A. Schmiede, Aero-Sensing Radarsysteme GmbH c/o DLR Research Centre, Oberpfaffenhofen,
Germany ; F. Holecz, P. Pasquali, U. of Zurich-Irchel, Switzerland
- K04:08** *Error analysis for repeat-pass SAR interferometry: applications for deformation analysis*
R. Hanssen, Delft Inst. for Earth-Oriented Space Research Delft U. of Technology, JA Delft, the Netherlands
- K04:08** *Phase unwrapping: measures of success*
M. D. Pritt, Lockheed Martin Corp, Maryland, USA

Session L05
Wednesday, July 15 AM
Local Area Network

- L05:01** *Key elements of IMT-2000*
N. Padovan, M. J. Ryan, L.C. Godara, School of Electrical Engineering U. College, U. of New South Wales,
Australian Defence Force Academy, Canberra Australia
- L05:02** *A teletraffic model of third generation mobile communication systems*
N. Padovan, L.C. Godara, M. J. Ryan, School of Electrical Engineering U. College, U. of New South Wales,
Australian Defence Force Academy, Canberra Australia
- L05:03** *Adjacent channel power ratio simulation for wireless LAN power amplifiers*
K. H. Koo, H. S. Park, S. H. Lee, Electronics Engineering Dpt, U. of Incheon, Korea . B. K. Kim, J. H. Park,
Radio Technology Section, Electronics Technology Research Inst., Taejon, Korea
- L05:04** *High speed transmission for wireless personal*
K. B. Letaief, R. D. Murch, Electrical & Electronic Engineering Dpt., The Hong Kong U. of Sci. & Technology
- L05:05** *Higher order statistics based multi-user canceller for electromagnetically dense communications environments*
I. Morns, S. Sali, Dpt of Electrical and Electronic Engineering Merz Court U. of Newcastle upon Tyne, UK

Session M04
Wednesday, July 15 AM
Near Field 3 : Field Measurements via the Modulated Scattering Technique (MST)
Workshop on Complex Media and Measurement Techniques
Organisers : J. Ch. Bolomey, F. Gardiol
Chair : F. Gardiol

- M04:01** *Recent developments in MST techniques and applications : a review*
J. Ch. Bolomey, Dpt de Recherche en Electromagnetisme, Supélec, Gif sur Yvette, France
- M04:02** *Separability criteria for the long-wire scattering technique*
A. Cullen, H. Griffiths, Dpt of Electronic and Electrical Engineering U. College London, London, UK
- M04:03** *Measurement of near-field diffraction patterns by an optically modulated scatterer*
J. F. Nye, U. of Bristol, H. H. Wills Physics Laboratory, Bristol, UK ; W. Liang, National physical Laboratory
Middlesex, UK
- M04:04** *A field mapping technique with minimum intrusiveness : the optically modulated scatterer*
W. Liang, National physical Laboratory Middlesex, UK ; J. F. Nye, U. of Bristol, H. H. Wills Physics Laboratory,
Bristol, UK
- M04:05** *Diagnostics of printed antennas and circuits*
J.-F. Zürcher, Ecole Polytechnique Fédérale de Lausanne, Laboratoire d'Electromagnetisme et d'Acoustique,
Lausanne, Switzerland
- M04:06** *New applications of WLAN concept, modulated backscatter and spread spectrum techniques*
F. Volgyi, P. Olasz, R. Seller, I. Mojzes

- M04:07** *Vector E-field probe for ISM applications*
J. M. Thiébault, G. Roussy, Laboratoire de Spectroscopie et des Techniques Microondes U. H. Poincaré Nancy I, Vandoeuvre les Nancy, France
- M04:08** *Advanced modulated scattering technique : a new approach for rapid electromagnetic field measurements*
Ph. Garreau, E. Beaumont, Satimo, Les Ulis, France ; J. Ch. Bolomey, Electromagnetic Research Dpt, Supélec, Gif sur Yvette, France

Session A06
Wednesday, July 15 PM
Asymptotic High Frequency Techniques
Organiser : F. Molinet
Chairs : M. Idemen, F. Molinet

- A06:01** *An inverse mixed boundary-value problem connected with one-dimensional profile inversion of a slab and half space bounded by an n-part impedance boundary*
M. Idemen, ISIK U., Büyükdere, Istanbul, Turkey
- A06:02** *Floquet-wave and guided-wave diffraction for a finite phased array on a grounded dielectric slab*
S. Maci, L. Borselli, M. Grassi, A. Toccafondi, R. Tiberio, Dpt of Information Engineering, U. of Siena, Siena, Italy
- A06:03** *Surface wave fields : high frequency representation and characteristics in a multilayered or periodic plane structure and in a multilayered cylindrical structure*
G. Berginc, Thomson CSF Optronique, Guyancourt, France
- A06:04** *Some new results on creeping rays*
I.V. Andronov, U. of Saint-Petersburg, Russia ; D. Bouche, CEA/DAM, DCSA/MIS, Bruyères-Le-Chatel, France
- A06:05** *Asymptotic currents method*
G. Leflour, V. Lange, Dassault Aviation, Saint Cloud, France ; F. Molinet, S. Tort, Mothesim, Le Plessis-Robinson, France
- A06:06** *Creeping waves and whispering gallery modes on convex and concave surfaces coated with a uniform layer of biisotropic or bianisotropic material*
F. Molinet, Société Mothesim, Le Plessis-Robinson, France

Session A07
Wednesday, July 15 PM
Rough Surface Scattering, Methods and Applications
Organisers : G. Berginc, Y. Beniguel
Chairs : G. Berginc, Y. Beniguel

- A07:01** *Inverse scattering problem for rough surface scattering*
A. Voronovich, Cooperative Inst. for Research in Environmental Sci., U. of Colorado/NOAA, Environmental Technology Laboratory, Colorado, USA
- A07:02** *Stochastic integral equation for rough surface scattering, Rrayleigh approximation*
H. Ogura, Dpt. Electronics and Information Sci., Kinki Univ, Wakayama, Japan ; Z. L. Wang, Communications Research Laboratories, Tokyo, Japan
- A07:03** *Comparison of scattering from Gaussian and non-gaussian rough surface having the same spectrum*
V. I. Tatarskii and V. V. Tatarskii, U. of Colorado/CIRES and NOAA/ERL/ETL/Environmental Technology Laboratory, Colorado, USA
- A07:04** *Model of VHF radio wave scattering by the sea surface at low grazing angles*
I. M. Fuks and A. G. Voronovich, Cooperative Inst. for Research in Environmental Sci., U. of Colorado/ NOAA, Environmental Technology Laboratory, Colorado, USA.

- A07:05** *Extension of small slope approximation method for 3D scattering cross section calculation of a rough convex object*
G. Berginc, Thomson CSF Optronique, Guyancourt, France ; Y. Beniguel, IEEA, Courbevoie, France
- A07:06** *Direct Monte Carlo simulation of the ocean surface*
V. V. Tatarskii, U. of Colorado/CIRES and NOAA/ERL/ETL/Environmental Technology Laboratory, Colorado, USA
- A07:07** *Scattering by two-dimensional dielectric random rough surfaces : numerical simulations and measurements at various incidence angles*
S. Mainguy, CEA, CESTA, Le Barp, France
- A07:08** *Study of slope variances of the sea surface*
C. Bourlier, J. Saillard, Laboratoire SEI, IRESTE, Nantes, France ; G. Berginc, DS/DFO, Thomson-CSF Optronique, Guyancourt, France
- A07:09** *Experimental and theoretical investigation of coupling between surface and subsurface scattering*
L. Hespel, S. Mainguy, CEA, CESTA, Le Barp, France ; J. J. Greffet, Laboratoire d'Energétique Moléculaire et Macroscopique, Combustion, Ecole Centrale Paris, CNRS, Châtenay-Malabry, France
- A07:10** *All-wave rough surface scattering theory*
A. Skriabine, Moscow State Technical U. of Civil Aviation, Moscow, Russia
- A07:11** *Analysis of scattering from fractally rough surfaces by using the T-matrix method*
W. Xiande, L. Xianyun, Z. Zhongzhi, China Research Inst. of Radiowave Propagation, China

Session B05

Wednesday, July 15 PM

Microwave Imaging and Dielectric Reconstruction Techniques

Organisers : Ch. Pichot, S. Caorsi

Chairs : Ch. Pichot, S. Caorsi

- B05:01** *Born approximation diffraction tomography revisited*
J.P. Lefebvre, A. Wirgin, Equipe Propagation et Imagerie, Laboratoire de Mécanique et d'Acoustique, Marseille, France
- B05:02** *Microwave backscattering tomography by a projected landweber method*
E. Salerno, CNR-Isti. di Elaborazione della Informazione, Pisa, Italy
- B05:03** *Rytov approximation and optimization based algorithms for solving inverse scattering with experimental data*
C. Kechibaris, K.S. Nikita, N. Uzunoglu, Dpt. of Electrical and Computer Engineering, National Technical U. of Athens, Athens, Greece
- B05:04** *Imaging of strongly scattering targets using cepstral filtering*
R.V. McGahan, J.B. Morris, AFRL/SNH, Hanscom, MA, USA ; M.A. Fiddy, Dpt of Electrical and Computer Engineering, U. of Massachusetts, Lowell, MA, USA
- B05:05** *Inverse source and conjugate gradient algorithms for solving inverse scattering in microwave tomography*
P. Lobel, A.K. Louis, Fachbereich Mathematik, U. des Saarlandes, D-66041 Saarbruecken ; R. Ferraye, Ch. Pichot, Laboratoire d'Electronique, Antennes et Télécommunications ; L. Blanc Féraud, M. Barlaud Laboratoire d'Informatique, Signaux et Systèmes de Sophia Antipolis, U. de Nice-Sophia Antipolis/CNRS, 06560 Valbonne, France
- B05:06** *Embedding approach for imaging two dimensional dielectric objects*
A.G. Tijhuis, A. Litman, TTE Division, Section EM, Faculty of Electrical Engineering, Eindhoven U. of Technology, MB Eindhoven, The Netherlands ; J.M. Geffrin, A. Joisel, Laboratoire des Signaux et Systèmes, Gif-sur-Yvette, France
- B05:07** *Multifrequency reconstruction : analysis of the 1D case*
A. de La Bourdonnaye, C. Dourthe, CERMICS, INRIA, Sophia Antipolis, France

- B05:08** *Numerical experiments on a bilinear frequency hopping approach to inverse scattering*
L. Crocco, T. Isernia, V. Pascasio, R. Pierri, Dpt di Ingegneria dell'Informazione, Seconda U. di Napoli, Naples, Italy;
V. Pascasio, ITTOEM, Ist. U. Navale, Napoli, Naples, Italy ; R. Pierri, Dpt di Ingegneria dell'Informazione della
Seconda U. di Napoli, Naples, Italy
- B05:09** *New results in microwave imaging using a genetic algorithm*
S. Caorsi, Dpt of Electronics, U. of Pavia, Pavia, Italy ; M. Pastorino, A. Rocca, Dpt of Biophysical and Electronic
Engineering, U. of Genoa, Genova, Italy
- B05:10** *Inverse scattering of a multi-layered dielectric cylinder using genetic algorithm*
C-L. Li, Y-Y. Cheng, C-C. Chiu, Electrical Engineering Dpt, Tamkang U., Tamsui, Taiwan, China

Session C05
Wednesday, July 15 PM
Parallel computation

- C05:01** *A numerical algorithm for the solution of 3D electromagnetic induction problems*
F. Zyserman, Dpt de Fisica - U. Nacional de La Plata, La Plata, Argentina ; J. Santos, Dpt of Mathematics,
Purdue U., Indiana, USA
- C05:02** *High performance computation with 128 Nodes IBM SP2*
F. Dubois, Dassault Aviation, Saint-Cloud, France
- C05:03** *EM field computation on massively parallel grids using single-bit or low precision integer field representation*
N. Simons, J. Treurniet, M. Cuhaci, Computational Electromagnetics Research Scientist, Antennas and Component
Integration, Directorate of Antennas and Integrated Electronics Communications Research Center, Ottawa, Ontario,
Canada ; G. Bridges, Dpt of Electrical and Computer Engineering, U. of Manitoba, Canada
- C05:04** *Domain decomposition with finite elements for microwave heating*
D.H. Malan, A. C. Mataxas, Electricity Utilisation Group, Dpt. of Engineering, U. of Cambridge, Cambridge, UK
- C05:05** *Server-client strategies applied to computational electromagnetics*
C.J. Gillan, V. Fusco, The High Frequency Engineering Laboratory, Dpt. Electrical and Electronic Engineering,
Queen's U. of Belfast, Ireland, UK

Session D05
Wednesday, July 15 PM
Asymptotic Methods

- D05:01** *Presentation of a complete RCS evaluation chain : from CAD to RCS*
J.-Y. Suratteau, O. Michaux, Aérospatiale Espace et Defense, Les mureaux, France ; P. Chenin, IMAG/LMC,
U. de Grenoble, Grenoble, France ; F.-R. Degott, R. Dessarce, UNIVAL S. A. , Logimath, Grenoble, France ;
J.-L. Pelissier, TEUCHOS, Versailles, France
- D05:02** *CAD based high-frequency monostatic RCS prediction code for complex objects : SERMAT*
M. Boutillier, M. A. Blondeel, Matra Bae Dynamics, DTM/TV/PC29, Vélizy-Villacoublay, France
- D05:03** *A transfinite moment method applied to electromagnetic scattering*
P. De Doncker, U. Libre de Bruxelles, Brussels, Belgium
- D05:04** *PO analysis of the scattering from dielectric flat plates*
G. Manara, Dpt of Information Engineering, U. of Pisa, Pisa, Italy ; G. Pelosi, G. Toso, Dpt of Electronic
Engineering, U. of Florence, Florence, Italy
- D05:05** *The use of asymptotic method for calculation of thin-walled piezoelectric transducers*
N.N. Rogacheva, Inst. for Problems in Mechanics, Russian Academy of Sci., Moscow, Russia ; E. M. Zveriaev,
Moscow Inst. for Economy Communal and Engineering, Moscow, Russia
- D05:06** *Method of asymptotic perturbations of fundamental solution and its application for problems of wave fields investigation*
Selin Victor I. , Obninsk, Russia

Session E07
Wednesday, July 15 PM
Global Modeling of Millimeter-Wave circuits : Part I
 Organisers : Samir M. El-Ghazaly, Jim Harvey, Tatsuo Itoh
 Chairs : Samir M. El-Ghazaly, Jim Harvey, Tatsuo Itoh

- E07:01** *A quasi-two-dimensional HEMT Model coupled with a 3D FDTD electromagnetic simulation software for microwave CAD applications*
 A. de Lustrac, Inst. d'Electronique Fondamentale, U. Paris-sud, Orsay, France ; A. Ammouche, A. Priou, Groupe d'Electromagnétisme Appliqué, IUT de Ville d'Avray, U. Paris X, Ville d'Avray, France
- E07:02** *New trends in modeling electromagnetic-wave interactions with semiconductor devices and circuits*
 Samir M. El-Ghazaly, Dpt. of Electrical Engineering, Telecommunications Research Center, Arizona State U., Arizona, USA
- E07:03** *Integrated electromagnetic and circuit modeling of large microwave and millimeter-wave structures*
 Michael B. Steer, Dpt. of Electrical and Computer Engineering, North Carolina State U., Raleigh, USA
- E07:04** *Solenoid inductors for reduced interaction with silicon substrates*
 El-Badawy El-Sharawy, M. Hashemi, Samir El-Ghazaly, Dpt. of Electrical Engineering, Telecommunication Research Center, Arizona State U., Arizona, USA
- E07:05** *Modeling terahertz radiation from a photoconducting structure using the kirchhoff surface integral formulation*
 K.A. Remley, A. Weisshaar, V.K. Tripathi, Dpt. of Electrical and Computer Engineering, Oregon State U., Oregon, USA; S.M. Goodnick, Dpt. of Electrical Engineering, Arizona State U., Arizona, USA
- E07:06** *An advanced method for the simulation of nonlinear circuits*
 Bernard Roth, Oliver Pertz, Adalbert Beyer, Gerhard-Mercator-U. Duisburg, Dpt. of Electrical Engineering, Duisburg, Germany

Session E08
Wednesday, July 15 PM
Global Modeling of Millimeter-Wave circuits : Part II
 Organisers : Samir M. El-Ghazaly, Jim Harvey, Tatsuo Itoh
 Chairs : Samir M. El-Ghazaly, Jim Harvey, Tatsuo Itoh

- E08:01** *Novel photonic band-gap structures for microwave and millimeter-wave planar circuits*
 Yongxi Qian, Vesna Radisic, Tatsuo Itoh, Electrical Engineering Dpt., U. of California, Los Angeles, USA
- E08:02** *The use of EM simulation in the development of avionics products*
 Mike Golio, James West, Lary Gatewood, Rockwell-Collins Avionics and Communications, USA
- E08:03** *Global electromagnetic characterization of CPW nonlinear line*
 A. Ibazizen, M.F. Wong, J. Wiat, France Telecom CNET, DMR/RMC, France; V. Fouad Hanna, U. Pierre et Marie Curie (Paris 6), France; W. Tabbara, Supélec, LSS, Gif sur Yvette, France
- E08:04** *Quasi-static analysis of 2-D periodic structures in VLSI interconnects*
 Jong-Sik Lee, Myun-Joo Park, Byung-Sung Kim, Sangwook Nam, Applied Electromagnetics Lab., Institute of New Media and Communications, Seoul National U., Seoul, Korea
- E08:05** *Full-wave electromagnetic deembedding of monolithic device of arbitrary layout geometry*
 C.-K. C. Tzuang, Y.-D. Ch'iu, Inst. of Electrical Communication Engineering, National Chiao Tung U., Hsinchu, Taiwan
- E08:06** *RF applications of quantum functional devices (QFD)*
 V. Nair, N. El-Zein, G. Kramer, G. Maracas, H. Goronkin, Motorola Inc., Phoenix Corporate Research Laboratories, Arizona, USA

Session F05
Wednesday, July 15 PM
Active and Phased Array Antenna
 Organisers : A. Roederer, G. Duret
 Chairs : Bertram Arbesser-Rastburg, Hans Steyskal

- F05:01** *The impact of future space-borne SAR system requirements on active phased array antenna technology*
 W. P. M. N Keizer, TNO-FEL, The Hague, Netherlands
- F05:02** *A novel time-domain processor for real time SAR operation*
 G. Franceschetti, A. Mazzeo, N. Mazzocca, E. Napoli, A. Strollo, P. Spirito, M. Tesaro, U. di Napoli, Federico II, Dpt di Ingegneria Elettronica, Napoli, Italy ; G. Franceschetti, IRECE, Napoli, Italy ; G. Franceschetti, UCLA, Dpt of Electrical Engineering, Los Angeles, Californie, USA
- F05:04** *Performance of small digital beamforming antenna*
 L. Pettersson, M. Danestig, Swedish Defence Research Establishment, Linköping, Sweden
- F05:05** *Current modes for microstrip array elements of comple shape*
 H. Steyskal, J. S. Herd, AF Research Laboratory /SNHA, Hanscom, USA
- F05:06** *Transmit - receive antenna for ICO satellite operating in S band (INMARSAT-P specification)*
 B. Pinte, Y. Latouche, Alcatel Espace, Toulouse, France ; G. Piton, CNES, Toulouse, France
- F05:07** *A minimax antenna array synthesis applied to optimization with random erros on the excitation coefficients*
 C. Roques, P. Aime, Alcatel Espace, Dpt Antennes Spatiales, Toulouse, France ; M. Masmoudi, P. Guillaume, U. Paul Sabatier, INSA, CNRS, Toulouse, France
- F05:08** *A Beam-switchable active microstrip antenna array*
 Y.-H. Chou, S.-J. Chung, Dept. of Communication Eng., Nat'l Chiao Tung U., Hsinchu, Taiwan
- F05:09** *A new approach to the problem of active aerals account*
 V.L Danilchuk, Novgorod State U., Dpt of the Theoretical and Special Physics, Novgorod, Russia

Session G08
Wednesday, July 15 PM
Photonic Band Structures
 Organisers : D. Maystre, G. Tayeb
 Chairs : D. Maystre, G. Tayeb

- G08:01** *A new FDTD approach to study PBG structures : application to parabolic reflectors*
 M. Thévenot, A. Reineix, M. S. Denis, B. Jecko, IRCOM - UMR CNRS n° 6615 - Equipe Electromagnétisme, Faculté des Sci., Limoges, France
- G08:02** *Electromagnetic scattering solution of a finite 2-D dielectric photonic band gap lattice*
 D. R. Smith, N. Kroll, S. Schultz, Dpt of Physics, U. of California, California, USA ; O. J. F. Martin, Laboratory of Field Theory and Microwave Electronics Swiww Federal Inst. of Technology, Zurich, Switzerland
- G08:03** *Channel drop filters in photonic crystals*
 S. Fan, P. R. Villeneuve, J. D. Joannopoulos, Dpt of Physics, Massachusetts Inst. of Technology, Cambridge, MA ; H. A. Haus, Dpt of Electrical Engineering and Computer Sci. Massachusetts Inst. of Technology, Cambridge, MA
- G08:04** *Experimental and theoretical comparison of photonic crystals transmission properties*
 P. Sabouroux, G. Tayeb, D. Maystre, G. Kaul, Laboratoire d'Optique Electromagnétique Unité Propre de Recherche de l'Enseignement Supérieur, Faculté des Sci. et Techniques de St-Jérôme, Marseille, France
- G08:05** *Photonic band structure and circuit models for perfectly conducting capacitive grids*
 R. C. McPhedran, N. A. Nicorovici, School of Physics, Sydney, Australia ; L. C. Botten, School of Mathematical Sci., U. of Technology, Sydney, Australia
- G08:06** *Parametric analysis of metallic photonic band-gap materials*
 G. Poilasne, Ph. Pouliguen, C. Terret, LSR/LAT UPRES-A CNRS 6075, U. de Rennes 1, Rennes, France ; L. Desclos, M. Madihian, NEC Corporation, C & C Laboratories, Network Laboratories, Kanagawa, Japan

- G08:07** *Band gap properties of 2D and 3D metallic photonic crystals*
G. Tayeb, G. Guida, D. Maystre, P. Vincent, Laboratoire d'Optique Electromagnétique Unité Propre de Recherche de l'Enseignement Supérieur, Faculté des Sci. et Techniques de St-Jérôme, Marseille, France
- G08:08** *Defect states in metallic photonic band gap crystals*
M.M Sigalas, C.M Soukoulis, W. Y. Leung, S. Gupta, G. Tuttle, R. Biswas, K. M. Ho, Microelectronics Research Center, Ames Laboratory USDOE, Dpt of Physics and Astronomy, Iowa State U., Iowa, USA
- G08:09** *Theoretical and experimental study of metallic photonic band-gap materials : a multiple scattering modeling*
F. Pessan, E. Chung, G. Ruffé, V. Vignéras-Lefebvre, J. P. Parneix, Laboratoire de Physique des Interactions Ondes-Matière (PIOM) CNRS, UMR 5501, Talence, France
- G08:10** *Localized modes in two-dimensional triangular photonic crystal*
V. Kuzniak, Inst. of radio Engineering and Electronics, Czech Academy of Sci., Czech Republic

Session G09

Wednesday, July 15 PM

Superconducting Devices : from Gigahertz to Terahertz Technologies

Organisers : A. Kreisler, J. Sombrin

Chairs : A. Kreisler, J. Sombrin

- G09:01** *Superconducting technologies for the future millimeter and submillimeter wave space applications*
P.J. Encrenaz, G. Beaudin, DEMIRM URA 336 CNRS, Observatoire de Paris, France
- G09:02** *High temperature superconductor planar microwave devices*
M. Pyée, LDIM, U. Paris 6, Paris, France
- G09:03** *Non-destructive characterization of high T_c superconducting films and applications*
Y. Roelens, M. Achani, N. Bourzgui, P. Tabourier, IEMN-DHS UMR 9929 CNRS, Villeneuve d'Ascq, France ; J. C. Carru, LEMCEL, U. du Littoral, Calais, France
- G09:04** *Planar superconducting HT_c antennas at 38 GHz*
X. Castel, M. Guilloux-Viry, A. Perrin, LCSIM UMR 6511 CNRS, U. de Rennes 1, Rennes, France ; S. Quété, K. Mahdjoubi, J. M. Floc'h, C. Terret, J. Citerne, LSR UPRES-A 6075 CNRS, U. Rennes I and INSA de Rennes, Rennes, France
- G09:05** *Terahertz detection with superconducting bolometers*
A. Gaugue, E. Caristan, A. Kreisler, LGEP URA 127 CNRS, Gif-sur-Yvette, France ; D. Robbes, C. Gunther, GREYC UPRES-A 6072 CNRS, ISMRa, Caen, France ; A. Sentz, LDIM, U. Paris 6, Paris, France
- G09:06** *Design of high temperature superconducting filters*
F. Rouchaud, V. Madrangeas, M. Aubourg, P. Guillon, IRCOM UMR 6615 CNRS, U. de Limoges, Limoges, France ; B. Theron, M. Maignan, ALCATEL ESPACE, Toulouse, France
- G09:07** *Equivalent models for HT_c superconducting microstrip discontinuities*
S. Protat, O. Picon, LSC, U. de Marne la Vallée, Noisy le Grand, France ; M. Villegas, C. Delabie, ESIEE, Noisy le Grand, France
- G09:08** *Field theory investigation of the nonlinearity of microwave superconductor devices*
Y. Di, Xian Electronics Technical U., Popular Republic of China ; D. Li, Dept of Electronics, Beijing Normal U., Popular Republic of China

Session H05
Wednesday, July 15 PM
Composite Materials II
Workshop on Complex Media and Measurement Techniques
 Organisers : D. Jeulin, V. Vigneras
 Chairs : D.S. McLachlan, V. Vigneras

- H05:01** *Investigation of the electromagnetic properties of strongly anisotropic composites made with orientated conducting wires*
 P.M. Jacquot, Dassault Aviation, DGT/DTA/MT, Saint Cloud, France
- H05:02** *Ferromagnetic-based composites with high impedance and strong anisotropy*
 O. Acher, A.-L. Adenot, F. Duverger, CEA Ripault, St Cloud, France
- H05:03** *Planar composite materials made of randomly distributed sticks : modeling and measurement of the square impedance in the microwave range*
 T. T. Nguyen, G. Mazé-Merceur, CEA CESTA, Le Barp, France
- H05:04** *Measurements of universal and non-universal percolation exponents in macroscopically similar systems*
 C. Chitame, D. S. McLachlan, Physics Dpt and Condensed Matter Research Unit, U. of the Witwatersrand, Johannesburg, South Africa
- H05:05** *Optical behaviour of R.F. pulverised Au-Al₂O₃ thin cermet films at oblique incidence under polarized light. Thickness effect when crossing the percoltion threshold*
 M. Gadenne, Laboratoire d'Optique des Solides, U. P. et M. Curie, Paris, France ; P. Gadenne, Laboratoire de Magnétisme et d'Optique, U. de Versailles, Versailles, France
- H05:06** *Non - linear electrical behaviour of carbon - polymer random composites*
 F. Carmona, L. Lamaignère, J.-F. Muzy, Centre de recherche Paul Pascal, Pessac, France ; A. Touboul, Laboratoire IXL, U. de Bordeaux, Talence, France
- H05:07** *Enhancement of nonlinear reponse in metal-dielectric composites near a sharp quasi-static resonance*
 D. J. Bergman, Inst. of Solid State Physics, Tel Aviv U., Tel Aviv, Israel
- H05:08** *Analysis of the frequency behaviour of composites polymer/conducting polymer*
 J. L. Miane, T. Colin, G. Ruffie, Laboratoire de Physique des Interactions Ondes-Matière, Talence, France
- H05:09** *Optical absorption in simulated fractal metal films*
 M. Perreau, Laboratoire de Physique théorique de la matière condensée, U. Denis Diderot, Paris, France ; S. Berthier, J. Peiro, J. Lafait, Laboratoire d'Optique des Solides, U. P. et M. Curie, Paris, France
- H05:10** *Optical behaviour of R.F. sputtered Au-TiO₂ thin cermet films : influence of the particles size and the gold concentration*
 X. Quélin, S. Liberman, J. Sztern, P. Gadenne, Laboratoire de Magnétisme et d'Optique, U. de Versailles Saint-Quentin, Versailles, France; A. Bourdon, Laboratoire des Milieux Désordonnés et Hétérogènes, U. P. et M. Curie, Paris, France
- H05:11** *Optimization of radar absorbing honeycomb by inverse method and morphological observations*
 C. Druetz, G.P. Piau, Aerospatiale CCR, Suresnes, France
- H05:12** *Anomalous properties of inhomogeneous media in a magnetic field*
 A.M. Satanin, V.V. Skuzovatkin, Nizhny Novgorod U., Nizhny Novgorod, Russia
- H05:13** *Nonlinear transport in periodic structures near a metal-insulator transition*
 A.M. Satanin, C. Sub Kim, Nizhny Novgorod U., Nizhny Novgorod, Russia

J. I. P. R. 4 - Session I05
Wednesday, July 15, PM 13:40-17:20
Polarimetry In Multi-Sensor Signature Fusion
 Organisers : A.J. Bedard, Jr, and W.M. Boerner
 Chairs : A.J. Bedard, Jr, and H. Schimpf

- I05:01** *Recent advances in infrasonic and near infrasonic atmospheric sounding and imaging*
 (Overview) A.J. Bedard, Jr, NAO-ETL, Environmental Research Center, Boulder, CO, USA.
- I05:02** *Infrasonic observation of earthquakes*
 J.P. Mutschlecner, R. W. Whitaker, Los Alamos National Laboratory, Earth and Environmental Science Division, Los Alamos, NM, USA.
- I05:03** *Recent advances in ULF / ELF polarimetry*
 J. Y. Dea, NAV-SPAWAR, San Diego, CA, USA ; W.-M. Boerner, Dept of Electrical Engineering and Computer Sci., University of Illinois at Chicago ; Chicago, IL, USA;
- I05:04** *Low frequency atmospheric acoustic energy associated with severe weather velocity*
 A.J. Bedard, Jr, NAO-ETL, Environmental Research Center, Boulder, CO, USA.
- I05:05** *3-Dimensional polarimetric imaging of metallic objects in snowpack using an FM-CW SAR*
 (Overview) T. Moriyama, Y. Yamaguchi, H. Yamada, Dept of Information Engineering, Niigata University, Niigata-shi, Japan.
- I05:06** *Automatic target recognition with a two-frequency millimeter wave SAR*
 H. Schimpf, FGAN-FHP, Forschungsinstitut für Hochfrequenzphysik, Wachtberg, Germany
- I05:07** *Road surface condition observed by polarization ratio using a bi-static FM-CW radar*
 Y. Yamaguchi, K. Kimura, H. Yamada, K. Inomata, T. Fukae, Dept of Information Engineering, Niigata University, Niigata-shi, Japan.
- I05:08** *Object classification in traffic environment using polarimetry*
 N. Appenrodt, Gerhard-Mercator-U. GH duisburg, Inst. für Technische Informatik, Duisburg, Germany ; G. Wanielik, H. Neef, Daimler Benz AG, Ulm, Germany.

Session J05
Wednesday, July 15 PM
Dielectric Characteristics of Geophysical Media
 Organiser : M. Hallikainen
 Chair : M. Hallikainen

- J05:01** *Dielectric properties of wet snow in the 0.1 to 37 GHz range*
 M. Hallikainen, T. Vänskä, Helsinki U. of Technology, Espoo, Finland
- J05:02** *A Comparison of dielectric models of dry snow*
 W. Huining, Helsinki U. of Technology, Espoo, Finland
- J05:03** *Microwave dielectric characterization of vegetation*
 A. Franchois, Space Applications Inst., Joint Research Centre, Ispra, Italy
- J05:04** *In vivo dielectric response as related to tissue structure, function and physiologic activity in selected trees*
 K. C. McDonald, Jet Propulsion Laboratory, Mail Stop 300-233, Pasadena, CA, USA ; R. Zimmermann, Bayreuth Inst. for Terrestrial Ecosystem Research, U. of Bayreuth Plant Ecology II, Bayreuth, Germany

Session J06
Wednesday, July 15 PM
Microwave Remote Sensing of Crops
 Organiser : P. Ferrazzoli
 Chairs : P. Ferrazzoli, J.-P. Wigneron

- J06:01** *The relations between backscattering coefficient and biomass of small leaf and wide leaf crops*
 S. Paloscia, G. Macelloni, P. Pampaloni, CNR-IROE, Firenze, Italy
- J06:02** *Using Radiative Transfer models with measurements of crop structure to explain ERS signatures*
 G. Cookmartin, S. Quegan, U. of Sheffield, Sheffield, UK ; P. J. Saich, R. A. Cordey, GEC-Marconi Research Centre, Great Baddow, Chelmsford, UK ; A. Sowter, National Remote Sensing Centre Limited, Farnborough, Hampshire, UK
- J06:03** *Monitoring surface variables over crop fields from C-band radar data*
 J. P. Wigneron, A. Oliso, INRA Bioclimatologie, Avignon, France ; P. Ferrazzoli, U. Tor Vergata, DISP, Roma, Italy
- J06:04** *On the use of Radarsat and ERS SAR data for ricefields monitoring*
 T. Le Toan, F. Ribbes, N. Floury, CESBIO, Toulouse, France
- J06:05** *Multifrequency emission of wheat: model validation and application to parameter retrieval*
 P. Ferrazzoli, L. Guerriero, U. Tor Vergata, DISP, Roma, Italy ; J. P. Wigneron, INRA Bioclimatologie, Avignon, France ; A. Chanzy, INRA Sci. du sol, Avignon, France
- J06:06** *The calibrated Radarsat data for rice growth stage monitoring*
 Y. Shao, X. T. Fan, C. Z. Wang, Inst. of Remote Sensing Applications, Beijing, China ; B. Brisco, R. Brown, S. Ross, Canada Center for Remote Sensing, Ottawa, Canada ; G. Staples, Radarsat International, Canada
- J06:07** *Soil moisture estimation under crops during a vegetation cycle*
 A. Quesney, O. Taconet, S. Le Hégarat-Masclé, CETP/CNRS, Vélizy, France ; M. Normand, C. Loumagne, CEMAGREF, Division hydrologie, Antony, France ; J. P. Wigneron, INRA / Bioclimatologie, Montfavet, France

Session K05
Wednesday, July 15 PM
Interferometry

- K05:01** *Large scale interferometric DEM and map generation using ERS tandem data*
 M. Schwaebisch, J. Moreira, Aero-Sensing Radar Systems, c/o DLR Oberpfaffenhofen, Germany
- K05:02** *Land subsidence mapping with ERS SAR interferometry*
 U. Wegmüller, T. Strozzi, Gamma Remote Sensing, Muri BE, Switzerland ; C. Werner, Jet Propulsion Laboratory, Pasadena, CA, USA
- K05:03** *Calibration of interferometric SAR system using kinematic ground GPS measurements*
 A. Safaeinili, Jet Propulsion Laboratory, Mail Stop 300-235, Pasadena, CA, USA
- K05:04** *Correcting motion compensation induced height errors in airborne SAR-interferometry*
 R. Scheiber, Inst. für Hochfrequenztechnik Deutsches Zentrum für Luft und Raumfahrt (DLR), Wessling, Germany
- K05:05** *SAR processing and interferometry software*
 U. Wegmüller, T. Strozzi, C. Warner, Gamma Remote Sensing, Muri BE, Switzerland
- K05:06** *An adaptive least squares phase unwrapping algorithm*
 T. L. Ainsworth, J.-S. Lee, Remote Sensing Division Naval Research Laboratory, Washington, DC, USA
- K05:07** *A new algorithm for fast stable phase unwrapping in SAR interferometry using Helmholtz' equation eigenfunctions and regularization procedure*
 I. Lyuboshenko, H. Maître, Dpt. IMAGES, Ecole Nationale Supérieure des Télécommunications, Paris, France
- K05:08** *Multilook processing of interferometric SAR imagery using discrete wavelet approximation*
 L.-C. Tsai, K. S. Chen, T. Y. Liao, Center for Space and Remote Sensing Research National Central U., Chung-Li, Taiwan ; L.-C. Tsai, K. S. Chen, T. Y. Liao, Graduate Inst. of Space Science, National Central U.; Chung-Li, Taiwan
- K05:09** *Sensitivity evaluation of the multibase interferometer*
 V. P. Denisov, D. L. Antonov, Tomsk, Russia

- K05:10** *Processing the results of synthetic aperture radar interferometry by the method of maximum likelihood*
V. P. Denisov, D.V. Dubinin, B. V. Iljukhin, Tomsk, Russia
- K05:11** *The usage of multimeasure spheres packing of multiscale interferometries.*
V. P. Denisov, D.V. Dubinin, Tomsk, Russia

Session L06
Wednesday, July 15 PM
Wireless Sensor and Communications Techniques II
Organisers : A. Springer, R. Weigel
Chair : A. Springer

- L06:01** *Hot spot analysis experiments in GSM cells*
F. Jondral, U. Karlsruhe, Institut für Nachrichtentechnik, Karlsruhe, Germany
- L06:02** *Performance evaluation of smart antenna systems based on deterministic propagation*
J. E. Dietert, Inst. of High Frequency Technology, Aachen U. of Technology, Aachen, Germany
- L06:03** *Capacity improvement using smart antennas*
M. Bronzel, G. Fettweis, Dresden U. of Technology, Chair for Mobile Communications Systems, Dresden, Germany
- L06:04** *Site-specific propagation modeling for wireless communication systems*
K. A. Remley, A. Weisshaar, Dpt. of Electrical and Computer Engineering, Oregon State U., Corvallis, Oregon, USA
- L06:05** *High resolution measurement equipment for the determination of channel impulse responses for indoor mobile communications*
G. Wölflé, A. J. Rohatschek, H. Förner, F. M. Landstorfer, Insitut für Hochfrequenztechnik, Univ. of Stuttgart, Stuttgart, Germany
- L06:06** *Indoor radiowave propagation : channel sounding and parameter extraction*
P.E. Leuthold, P. Truffer, Communication Technology Laboratory, Swiss Federal Inst. of Technology, ETH Zentrum, Zurich, Switzerland

Session M05
Wednesday, July 15 PM
Near Field 4 : RF/Microwave NF Techniques
Organisers : J. Ch. Bolomey, L. Jofre
Chair : L. Jofre

- M05:01** *Transient and frequency domain field measurements with an isotropic photonic sensor*
F. Gassman, Montena emc
- M05:02** *Antenna analyser using the modulated scattering technique*
J.L. Blot
- M05:03** *Broadband and low interaction rapid near-field setup*
D. Picard, J. Ch. Bolomey, Electromagnetic Research Dpt, Supélec, Gif sur Yvette, France ; A. Ziyat, Lab. Electronique et Systèmes, U. Mohammed I^{er} Oujda, Maroc
- M05:04** *Recent developments in electromagnetic diagnosis using near-field techniques*
S. Lestringuez, F. Lucas, L. Giauffret, Satimo Lot, Gramat, France ; Ph. Garreau, Satimo, Les Ulis, France ; J. Ch. Bolomey, Supelec, Electromagnetics Dpt, Gif sur Yvette
- M05:05** *Plane wave synthesis technique for near-field bistatic RCS measurements*
F. Gallet, P. Baudon, G. Germain, P. Naud, CEA/CESTA, Le Barp, France ; Ph. Garreau, Satimo, Les Ulis, France ; J. Ch. Bolomey, Supelec, Service d'Electromagnétisme, Gif sur Yvette, France
- M05:06** *Derivation of the far-field target R.C.S from near-field measurements*
F. Le Dorset, E. Pottier, J. Saillard, Lab. SEI/EP, IRESTE, U. of Nantes, Nantes, France
- M05:07** *Applications of A-MST probe arrays to rapid diagnostic imaging*
B. Cown, J. Estrada, Satimo Acworth, GA, USA ; Ph. Garreau, E. Beaumont, Satimo, Les Ulis, France ; P. Dumon, J.M. Lopez, CNES, Centre National d'Etudes Spatiales, Toulouse, France

- M05:08** *Matrix formulation for antenna diagnosis and near-field to far-field transformation*
S. Blanch, L. Jofre, Dpt. of Signal Theory and Communications, Politechnica U. of California, Barcelona, Spain
- M05:09** *35m x 16m large nearfield measurement system*
M. Niwata, Toshiba Corporation Komukai Works, Kawasaki, Japan ; S. Sapmaz, NSI, Nearfield Systems Incorporated, Tokyo, Japan
- M05:11** *Realization of a didactic radar*
O. Béchu, T. Tenoux, L. Bouillot, SIRADEL, Espace performance III, St Grégoire, France

Session A08
Thursday, July 16 AM
Coherent Effects in Random Media
Organiser : V. Freilikher
Chairs : V. Freilikher, H. Ogura

- A08:01** *Mie scattering in a magnetic field*
B. van Tiggelen, D. Lacoste, CNRS/Laboratoire de Physique et modelisation des systèmes Condensés, U. Joseph Fourier, Magistère, Grenoble, France ; G. Rikken, A. Sparenberg, Grenoble High Magnetic Field Laboratory, Max-Planck Inst. für Festkörperforschung/CNRS, Grenoble, France
- A08:02** *Time dependance of the speckle in the multiple scattering of waves in random systems*
R. Maynard, Physique et Modelisation des Milieux Condenses U. Joseph Fourier/CNRS/Magistere, Grenoble, France
- A08:03** *Spectral properties of classical waves in high contrast periodic media*
A. Figotin, Dpt of Mathematics, U. of North Carolina, Charlotte, USA
- A08:04** *Numerical study of band gaps generated by randomly perturbed metallic photonic crystals*
G. Guida, D. Maystre, G. Tayeb, P. Vincent, Laboratoire d'Optique, Faculté des Sci. et Techniques de St-Jérôme, Marseille, France
- A08:05** *Static phase and dynamics of microwaves in random media*
P. Sebbah, O. Legrand, Laboratoire de Physique de la Matière Condensée, U. de Nice-Sophia Antipolis, Nice, France ; A. Z. Genack, Dpt of Physics, Queen College of CUNY, Flushing, NY, USA
- A08:06** *Statistics of microwave radiation near the localization threshold*
A. Genack, M. Stoytchev, A. Chabanov, Dpt of Physics, Queen College of CUNY, Flushing, NY, USA
- A08:07** *Coexistence of ballistic transport, diffusion, and localization in surface disordered waveguides*
V. Freilikher, The Jack and Pearl Resnik Inst. of Advanced Technology, Dpt of Physics, Bar-Ilan U. Ramat-Gan, Israël ; A.A. Maradudin, Dpt of Physics and Astronomy and Inst. for Surface and Interface Sci., U. of California, Irvine, USA ; J. A. Sanchez-Gil, Inst de Estructura de la Materia, C.S.I.C., Madrid, Spain ; I. Yurkevich, School of Physics and Space Research, U. of Birmingham, Birmingham, UK
- A08:08** *Disordered microwave cavities as a model for spectral correlations in the transition from diffusive to ballistic regimes*
O. Legrand, F. Mortessagne, P. Sebbah, C. Vanneste, Laboratoire de Physique de la Matière Condensée, U. de Nice-Sophia Antipolis, Nice, France
- A08:09** *Scaling properties in highly anisotropic systems*
C. M. Soukoulis, E. N. Economou, I. Zambetaki, S. Katsoprinaski, Research Center of Crete, Dpt of Physics, U. of Crete, Heraklion, Crete, Greece ; C. M. Soukoulis, Q. Li, Ames Laboratory and Dpt of Physics and Astronomy, Ames, Iowa, USA
- A08:10** *Can a thermal source be spatially coherent ?*
J.-J. Greffet, R. Carminati, Lab EM2C Ecole Centrale Paris, Chatenay-Malabry, France
- A08:11** *Scattering of two-dimensional random heterogeneous media : comparison of radiative transfer and electromagnetic numerical simulations*
J.-J. Greffet, J.-B. Thibaud, Lab. EM2C, UPR 288 CNRS, Chatenay-Malabry, France ; L. Roux, P. Mareschal, N. Vukadinovic, Dassault Aviation, Saint Cloud, France

- A08:12** *Experimental study of light scattering by well characterized two-dimensional randomly rough dielectric surfaces*
M. O. Calvo, J. Greffet, Laboratoire EM2C, Ecole Centrale Paris, Châtenay-Malabry, France ; M. Josse, Commissariat à l'Energie Atomique, Centre d'Etudes Scientifiques et Techniques d'Aquitaine, Le Barp, France
- A08:13** *Scattering from an object on random rough surface stochastic green function*
H. Ogura, Dpt. Electronics and Information Sci., Kinki U., Wakayama, Japan ; T. Kawanishi, Kyoto U. Venture Business Laboratory, Kyoto, Japan
- A08:14** *Frequency-angular correlations of the intensity of scattered wave from a random surface*
T. Kawanishi, Kyoto U. Venture Business Laboratory, Kyoto, Japan ; H. Ogura, Dpt. Electronics and Information Sci., Kinki U., Wakayama, Japan
- A08:15** *Backscattering enhancement in the scattering from a cylindrical random rough metal surface*
Z. L. Wang, M. Izutsu, The Communications Research Laboratory, Koganei, Tokyo, Japan ; H. Ogura, Dpt. Electronics and Information Sci., Kinki U., Wakayama, Japan
- A08:16** *Near-field and far-field changes in the spectrum of light scattered from a randomly rough surface*
V. Shchegrov, A. A. Maradudin, Dpt. of Physics and Astronomy and Inst. for Surface and Interface Sci., U. of California
- A08:17** *Incoherent acoustic imaging in the ocean*
M. J. Beran, Faculty of Engineering, Tel Aviv U., Ramt Aviv, Israel
- A08:18** *Impurity induced local polariton states*
A.A. Lisyansky, L. I. Deych, Dpt of Physics, Queens College of City U. of New York, Flushing, NY
- A08:19** *Transverse spectra in two-way wave propagation in random media*
S. Frankenthal, Faculty of Engineering, Tel Aviv Univ., Ramt Aviv, Israel
- A08:20** *Dispersion relation for electromagnetic waves in a stochastically modulated dielectric superlattice*
A. R. McGurn, S. Simeonov, Dpt. of Physics, Western Michigan U., Kalamazoo, Michigan, USA ; A. A. Maradudin, Dpt of Physics and Astronomy, U. of Californie, Irvine, USA ; V. A. Ignatchenko, Yu. I. Mankov, M. V. Erementchouk, L. V. Kirensky Instit. of Physics, Krasnoyarsk, Russia
- A08:21** *Wave localization in random media : a path-integral approach*
G. Samelsohn, R. Mazar, Dpt of Electrical and Computer Engineering Ben-Gurion U. of the Negev, Beer-Sheva, Israel
- A08:22** *Modeling of high-frequency propagators in inhomogeneous background random media*
R. Mazar, Dpt of Electrical and Computer Engineering Ben-Gurion U. of the Negev, Beer-Sheva, Israel

Session B06

Thursday, July 16 AM

Shape reconstruction and Object Identification

Organisers : Ch. Pichot, S. Caorsi

Chairs : M. Fiddy, A.G. Tjihuis

- B06:01** *Target identification from limited backscatter field measurements*
M.A. Fiddy, Dpt of Electrical and Computer Engineering, U. of Massachussets, Lowell, MA, USA ; R.V. McGahan, J.B. Morris, AFRL/SNH, Hanscom AFB, MA, USA
- B06:02** *A microwave holographic imaging technique based on the method of auxiliary sources*
R.S. Zaridze, G. Bit-Babik, Tbilissi State U., Republic of Georgia ; D. P. Economou, D.I. Kaklamani, N. Uzunoglu, Dpt. of Electrical and Computer Engineering, National Technical U. of Athens, Athens, Greece
- B06:03** *Determination of the orientation of the cylindrical bodies by the use of scattering data*
E. Topsakal, Electrical and Electronics Engineering Faculty, Istanbul Technical U., Turkey
- B06:04** *Reconstruction of inhomogeneous media from real electromagnetic scattering data*
F. Zirilli, Dpt di Matematica G. Castelnuovo, U. di Roma, Roma, Italy
- B06:05** *Successive approximations, propagation algorithms and the inverse obstacle problem*
G. Crosta, Dpt di Scienze dell'Ambiente e del Territorio, U. degli studi di Milano, Italy

- B06:06** *Convergence rates of a regularized newton method for inverse scattering problems*
T. Hohage, Inst. für Industriemathematik, Linz, Austria
- B06:07** *Neural network architectures for the estimation of conductivity profiles of layered structures in eddy current nondestructive testing applications*
I.T. Rekanos, T.D. Tsiboukis, Division of Telecommunications, Dpt. of Electrical and Computer Engineering, Aristotle U. of Thessaloniki, Thessaloniki, Greece
- B06:08** *A neural electromagnetic approach to object identification*
S. Caorsi, P. Gamba, Dpt of Electronics, U. of Pavia, Pavia, Italy
- B06:09** *Third order statistical characteristics of the surface shape in radar remote sensing of sea surface*
M. Gilman, Inst. for Problems in Mechanics, Moscow, Russia

Session C06
Thursday, July 16 AM
Hybrid Methods in Electromagnetism
Organiser : P. F. Combes
Chairs : P. F. Combes, W. Tabbara

- C06:01** *Time domain hybridation of UTD and FDTD*
H. Dillenbourg, B. Pecqueux, Centre d'Etudes de Gramat, Gramat, France ; P. Vaudon, B. Jecko, IRCOM-UMR 6615 du CNRS Equipe "Electromagnetisme" Faculte des Sci., Limoges, France
- C06:02** *Analysis of wideband coupling to a cavity : a hybrid integral equation / statistical approach*
W. Tabbara, J. Lefebvre, J. Von Hagen, Laboratoire des Signaux et Systèmes, Gif/Yvette, France ; D. Lecointe, Service Electromagnetisme, Gif/Yvette, France
- C06:03** *Antenna analysis using a combination of the finite-element method and the geometrical theory of diffraction*
E. Richalot, M. F. Wong, France Télécom CNET, DMR/RMC, France ; V. Fouad-Hanna, U. P. et M. Curie, Paris, France ; H. Baudrand, Laboratoire d'Electronique - Groupe de recherche en Electromagnétisme, ENSEEIHT, France
- C06:04** *Comparison of hybridization methods between MoM and asymptotics for wire antennas radiation*
S. Baudou, P. Borderies, ONERA-CERT, Toulouse, France ; S. Baudou, P. F. Combes, UPS, LGE-AD2M, Toulouse, France
- C06:05** *Hybrid methods for radar coverage forecasting*
M. F. Levy, K. H. Craig, A. A. Zaporozhets, Radio Communications Research Unit, Rutherford Appleton Laboratory, Oxon, UK
- C06:06** *Comparison between a rigorous and two asymptotic methods for the calculation of the lateral surface wave in VHF propagation channel*
B. Chateau, B. Roturier, J.-M. Louis, B. Souny, Ecole Nationale de l'aviation civile, Unité de Recherches sur les Systèmes CNS, Toulouse, France
- C06:07** *Diffraction of an electromagnetic wave on a target in an heterogeneeneous environment application to low altitude radar detection above the sea surface*
V. Fabbro, P. F. Combes, UPS, LGE-AD2M, Toulouse, France ; V. Fabbro, N. Douchin, ONERA-CERT, Toulouse, France

Session D06
Thursday, July 16 AM
Iterative Methods in Scattering
Organiser : H. Baudrand
Chairs : H. Baudrand, F. Obelleiro

- D06:01** *Iterative integral approaches to study radiation and scattering from bodies modelled by parametric surfaces*
M. F. Catedra, O. M. conde, Dpt de Ingenieria de Comunicacione, U. de Cantabria, Santander, Spain

- D06:02** *Iterative solutions of the MFIE for computing the electromagnetic scattering of large open-ended waveguide cavities*
F. Obelleiro, L. Landesa, Dpt Tecnoloxias das Comunicacions, ETSI Telecomunicacion, U. de Vigo, Vigo. Spain
- D06:03** *On the use of iterative selection of wavelet and wavelet-packet basis function in the method of moments*
Y. Leviatan, Dpt of Electrical Engineering, Technion-Israel Inst. of Technology, Haifa, Israel
- D06:04** *An iterative solution of the combined field integral equation*
J.L. Rodriguez, F. Obelleiro, A. G. Pino, Dpt Tecnoloxias das Comunicacions, ETSI Telecomunicacion, U. de Vigo, Vigo. Spain
- D06:05** *Domain decomposition and iterative methods in electromagnetics*
M.-Fai Wong, France Telecom CNET, DMR/RMC, France ; V. Fouad Hanna, U. P. et M. Curie, Paris, France ; H. Baudrand, Laboratoire d'Electronique, ENSEEIHT, France
- D06:06** *Applications of wave concept in planar circuits*
R. Garcia, H. Baudrand, ENSEEIHT Laboratoire d'Electronique, Toulouse, France ; M. F. Wong, France Telecom CNET DMR/RMC/ISS, Issy les Moulineaux, France
- D06:07** *Modeling of electromagnetic waves propagation in heterogeneous structures by using an iterative method*
V. Vigneras-Lefebvre, F. Pessan, J. P. Parneix, Laboratoire de Physique des Interactions Ondes-Matiere (PIOM), Talence, France
- D06:08** *The wave concept iterative process applied to study arbitrary shaped radiating structures*
M.-F. Wong, E. Richalot, France Telecom CNET, DMR/RMC, France ; H. Baudrand, Laboratoire d'Electronique, ENSEEIHT, France ; V. Fouad Hanna, U. P. et M. Curie, Paris, France

Session E09

Thursday, July 16 AM

Domain Decomposition, Segmentation and Hybridization Methods for Modeling Microwave Structures

- E09:01** *Some domain decomposition related methods in computational electromagnetics*
W.C. Chew, Center for Computational Electromagnetics, Dpt of Electrical and Computer Engineering U. of Illinois, Urbana, IL, USA
- E09:02** *A Domain decomposition method Maxwell equations in the frequency domain*
J. D. Benamou, F. Collino, P. Joly, INRIA, Le Chesnay, France
- E09:03** *Combined iterative subdomain methods in planar circuits*
D. Bajon, ENSAE, Toulouse, France ; H. Baudrand, R. Garcia, ENSEEIHT, Laboratoire d'Electronique, Toulouse, France ; M. F. Wong, France Telecom CNET DMR/RMC, Issy les Moulineaux, France
- E09:04** *Hybrid electromagnetic characterization of microwave modules*
F. Bordereau, D. Baillargeat, S. Verdeyme, M. Aubourg, P. Guillon, IRCOM, Faculté des Sci., Limoges, France
- E09:05** *Non-reflecting boundary conditions for guided waves*
Ph. Guillaume, A. Bendali, Dpt de Génie Mathématique, INSA Toulouse, France
- E09:06** *Diakoptics techniques in the FDTD method*
A. Ibazizen, M. F. Wong, Z. Altman, J. Wiart, France Télécom CNET, DMR/RMC, Issy les Moulineaux, France ; V. Fouad Hanna, U. P. et M. Curie, Paris, France ; W. Tabbara, Supelec, LSS, Gif sur Yvette, France
- E09:07** *Increase of the reduction factor for subgridding approach in the FDTD method*
S. Chaillou, J. Wiart, Z. Altman, Centre National d'Etude DES Télécommunications, Issy les Moulineaux ; W. Tabbara, Laboratoire Signaux et Systèmes, Supelec, LSS, Gif sur Yvette, France

Session F08
Thursday, July 16 AM
Conformal and Smart Microstrip Antennas
Organiser : K. F. Lee
Chairs : K. F. Lee, R.Q. Lee

- F08:01** *Varactor diode-loaded polarization-agile antennas*
P.M. Haskins, J. S. Dahele, Dpt. of Aerospace, Power and Sensors, Cranfield U., Roay Military College of Sci., Shrivenham, Swindon, UK
- F08:02** *EM field mapping issues related to active antenna design*
V. F. Fusco, Dpt. of Electrical and Electronic Engineering, Queen's U. of Belfast, Belfast, Ireland
- F08:03** *Pattern synthesis of conformal arrays by the simulated annealing technique*
F. Ares, J. A. Ferreira, Grupo de Sistemas Radiantes, Dpt de Fisica Aplicada, Facultad de Fisica, U. de Santiago de Compostela, Spain
- F08:04** *Radiation and scattering characteristics of spherical microstrip antennas*
H.-T. Chen, Dpt. of Electrical Engineering, Chinese Military Academy, Taiwan
- F08:05** *Coupling and radiation characteristics of cylindrical microstrip arrays*
K.-Lu Wong, Dpt. of Electrical Engineering, National Sun Yat-Sen U., Kaohsiung, Taiwan
- F08:06** *Powerful algebraic tools for the modeling of microstrip antennas mounted on arbitrary conformal structures*
J.-P. Damiano, J.-M. Ribero, M. Scotto, R. Staraj, Laboratoire d'Electronique, Antennes et Télécommunications, U. de Nice-Sophia Antipolis, Valbonne, France
- F08:07** *A Method for designing broadband microstrip antennas in multilayered planar structures*
Z.-Fa LIU, P.-S. Kooi, L.-W. Li, M.-S. Leong, T.-S. Yeo, Communications & Microwave Division, Dpt. of Electrical Engineering, National U. of Singapore, Singapore
- F08:08** *Analysis of microstrip antennas on spherical dielectric substrates perpendicular to a ground plane*
W. Y. Tam, Dpt. of Electronic Engineering, The Hong Kong Polytechnic U., Hong Kong, PRC

Session G10
Thursday, July 16 AM
Optical Interconnections in Electronic Systems : Design and Realization (I)
Organiser : E. Griesse
Chair : E. Griesse

- G10:01** *Intelligent optical networks*
Ted. H. Szymanski, McGill U., Dpt. of Electrical Engineering, Montreal, Quebec, Canada
- G10:02** *Optical interconnection subsystem in parallel processing machine RWC-1*
T. Yoshikawa, Optical Interconnection NEC Laboratory, RWCP, Ibaraki, Japan ; H. Matsuoka, Parallel and Distributed System Performance TRC Laboratory, RWCP, Ibaraki, Japan
- G10:03** *VLSI processing using optoelectronics and optical interconnects*
D. Fey, G. Grimm, C. Scheuermann, Friedrich-Schiller-U. Jena, Institut fuer Informatik, Jena, Germany
- G10:04** *Design of a free-space photonic backplane*
B. Robertson, McGill U., Dpt. of Electrical Engineering, Montreal, Quebec, Canada
- G10:05** *An overview of polymer fiber optical interconnect program at NEC research institute*
Y. Li, NEC Research., Princeton, USA
- G10:06** *Conventional printed circuit boards with integrated optical interconnects*
E. Griesse, Siemens Nixdorf Informationssysteme AG / C-LAB, Paderborn, Germany ; A. Himmler, U. GH Paderborn / C-LAB, Paderborn, Germany

Session G11
Thursday, July 16 AM
Photonic Crystals : from Microwave to Optics
 Organiser : J-M. Lourtioz

Chairs : J-M. Lourtioz, E. R. Brown

First part :

- G11:01** *3d metallo-dielectric photonic crystals with strongly capacitively coupled metallic islands*
 (Overview) E. Yablonovitch, D. F. Sievenpiper, Electrical Engineering Dpt, U. of California, Los Angeles, USA
- G11:02** *Localization in metal PBG's at millimeter wavelengths : finite superlattices and microresonators*
 (Overview) D. Lippens, IEMN, U. des Sci. et Techniques de Lille, Villeneuve d'Ascq, France
- G11:03** *Issues in the control of guided waves by two-dimensional photonic bandgaps for optoelectronics*
 D. Labilloy, H. Benisty, T. F. Krauss, U. Oesterlé, R. Houdré, LaboratoirePMC, Ecole Polytechnique, Palaiseau, France
- G11:04** *Photonic crystals as optical fibre waveguides*
 J. C. Knight, T. A. Knight, T. A. Birks, R. F. Cregan, B. J. Mangan, P. St. J. Russell, Optoelectronics group, Dpt of Physics, U. of Bath, Bath ; J.-P. de Sandro, G. G. Vienne, Optoelectronics Research Centre U. of Southampton, Southampton, UK
- G11:05** *Light-commandable defects in a three-dimensional terahertz photonic crystal*
 A. Chelnokov, S. Rowson, J.-M. Lourtioz, Inst. d'Electronique Fondamentale, U. de Paris-Sud, Orsay, France ; L. Duvillaret, J.-L. Coutaz, Laboratoire d'Hyperfréquence et Caractérisation, U. de Savoie, Le Bourget du Lac, France

Session H06
Thursday, July 16 AM
Chiral Media
Workshop on Complex Media and Measurement Techniques

- H06:01** *Spatially dispersive media as physically realisable alternatives for the perfectly matched layer*
 S. A. Tretyakov, Radiophysics Dpt, St. Petersburg State Technical U., St. Petersburg, Russia
- H06:02** *Bessel light beam structure in anisotropic crystals*
 A.M.Goncharenko, N. A. Khilo, E. S. Petrova, Div. for Optical Problems in Information Technologies, Minsk, Belarus
- H06:03** *Volumetric integral equation for bianisotropic media*
 M. V. Davidovich, Saratov State Technical U., ED & ID Dpt, Saratov, Russia
- H06:04** *Light reflection from an anisotropic magneto-optical medium with arbitrary direction of the magnetization*
 J. Pistora, D. Hrabovsky, K. Postava, D. Ciprian, Dpt. of Physics, Technical U. Ostrava, Ostrava Poruba, Czech Republic ; A. Fert, LPMC, INSA Toulouse, Dpt of Physics, Complexe Scientifique de Rangueil, Toulouse, France
- H06:05** *Alternative analysis on bianisotropic mixtures*
 W. Ren, T. Matsuoka, M. Tateiba, Dpt. of Comp. Sci. & Comm. Eng. Kyushu U., Fukuoka, Japan
- H06:06** *Numerical solution of scattering problems due to three-dimensional chiral bodies by using the MoM/FEM hybrid method*
 S. Caorsi, Dpt of Electronics, U. of Pavia, Pavia, Italy ; A. Massa, M. Raffetto, Dpt of Biophysical and Electronic Engineering, U. of Genova, Genova, Italy

J. I. P. R. 4 - Session I08
Thursday, July 16, AM 08:40-12:20
Polarimetric Signal Processing
Organisers : G. Wanielik and E. Pottier
Chairs : G. Wanielik and E. Hanle

- I08:01** *Multi-functional N-vector polarimetric radar signal processing*
 (Overview) G. Wanielik, Daimler Benz AG, Ulm, Germany.
- I08:02** *Near grazing angle measurements of terrain and vegetation at 76 Ghz and 140 Ghz*
 R. Finkle, A. Schreck, G. Wanielik, Daimler-Benz AG, Research Center, Ulm, Germany.
- I08:03** *Estimation of invariant Jones matrix parameters of the tropospheric radiopropagation channel*
 V.A. Khlusov, M.V Krutikov, G.S. Sharygin, Wave Scattering and Propagation Laboratory, TUCSR Tomsk, Russia.
- I08:04** *Modulation technique and data acquisition in a multifunctional polarimetric near range radar sensor*
 U. Siart, J. Detlefsen, Technische University Munchen, Lehrstuhl fur Hochfrequenztechnik, HFS, Munchen, Germany ; M. Wollitzer, G. Wanielik, A. Schreck, Daimler Benz AG, Ulm, Germany.
- I08:05** *Monostatic polarimetric R.C.S near field / far field transformation*
 F. Le Dorse, E. Pottier, J. Saillard, SEI-EP CNRS 63, IRESTE, Nantes, France.
- I08:06** *Comparison of several polarimetric radar configuration and calibration methods*
 A Rousseau, Matra Défense BAe, Selles Saint Denis, France.
- I08:07** *Tools for characterizing antenna polarization*
 B. Chevalier, E. Pottier, J. Saillard, Lab SEI-EP CNRS 63, IRESTE, Nantes, France.
- I08:08** *Polarimetric selection of the targets with adaptive signal processing*
 V. I. Ponomaryov, Inst. Politecnico Nacional. ESIME, U.P. Ticoman, col.San Jose Ticoman, Mexico ; A. V. Popov, M. F. Mamakov, Karkov, Aviation Inst., Ukraine.
- I08:09** *Comparison of simulation results of polarization parameters' Doppler modulation with experimental data*
 V.I. Karnychev, Tomsk University of Control System and Radioelectronics, Tomsk, Russia

Session J07
Thursday, July 16 AM
Polarimetry, Interferometry and their Combination for Vegetation Studies
Organisers : M. Moghaddam
Chairs : M. Moghaddam, R. Treuhaft

- J07:01** *«An introduction to polarimetric interferometry»*
 S. R. Cloude, AEL, Andrews, Scotland, UK
- J07:02** *A unified analysis of radar inteferometry and polarimetry for the estimation of forest parameters*
 R. N. Treuhaft, M. Moghaddam, Jet Propulsion Laboratory, California Inst. of Technology, Pasadena, California, USA
- J07:03** *High resolution polarimetric and interferometric radar observation of tropical rain forest*
 D. Hoekman, C. Varekamp, Wageningen Agricultural U., Dpt of Water Resources, Wageningen, The Netherlands
- J07:04** *Multidate ERS tandem data acquired over hilly forested terrain: discrimination of land-cover and forest types*
 J. M. Martinez, A. Beaudoin, U. Wegmuller, T. Strozzi, LCT Cemagref-ENGREF, Montpellier, France
- J07:05** *Modeling coniferous forest backscatter using statistically validated geometric information*
 P. Ferrazzoli, L. Guerriero, U. Tor Vergata, DISP, Roma, Italy
- J07:06** *Volume scattering effects in radar interferograms: foliage and icy media*
 H. A. Zebker, W. Hoen, Dpt of Geophysics and Electrical Engineering, Stanford U., Stanford, CA, USA
- J07:07** *The representation of vegetation scattering components in models: theory and observation*
 J. Bennet, S. Quegan, K. Morrison, and S.C.M. Brown, SCEOS, U. of Sheffield, Sheffield, UK

- J07:08** *Model investigation on the influence of tree distributions on SAR interferometry of forest*
G. Smith, J. Askne, Remote Sensing Group, Dpt of Radio and Space Sci., Chalmers U. of Technology, Goteborg, Sweden
- J07:09** *Modeling of radar response of some land cover types for the interpretation of polarimetric / interferometric measurements*
N. Floury, D. Dendal, T. Le Toan, J. C. Souyris, Centre d'Etudes Spatiales de la Biosphere, U. Paul Sabatier, Toulouse, France
- J07:10** *A hybrid algorithm for estimating forest parameters from POLSAR and INSAR data: an approach to minimizing the need for ancillary data*
M. Moghaddam, R. Treuhaft, Jet Propulsion Laboratory, California Inst. of Technology, Pasadena, California, USA

Session K06
Thursday, July 16 AM
Microwave Propagation in Tropical Regions
Organiser : M. Thurai
Chairs : M. Thurai, P. Watson

- K06:01** *The need for data in the tropics for propagation predictions*
B. Arbesser-Rastburg, Wave Interactions & Propagation Section ESA-ESTEC, Kaperlan, The Netherlands
- K06:02** *Rain cell diameters and heights - A new model of rain attenuation*
G. H. Bryant, Faculty of Electrical Engineering, Telecommunications Division, Eindhoven U. of Technology, Eindhoven, The Netherlands ; I. Adimula, Dpt di Electronica e Informazione, Politecnico di Milano, Milano, Italy ; C. Riva, Dpt di Electronica e Informazione, Politecnico di Milano, Milano, Italy
- K06:03** *Tropical precipitating cloud systems observed above manus island, PNG, using profiling Doppler Radars*
C. R. Williams, K. S. Gage, W. L. Ecklund, P. E. Johnston, CIRES, U. of Colorado, Boulder, Colorado, USA ; C. R. Williams, K. S. Gage, W. L. Ecklund, P. E. Johnston, NOAA, Aeronomy Laboratory, Boulder, Colorado, USA
- K06:04** *Investigation of rain fading and possible countermeasures on satellite-earth links operating in tropical regions*
A. F. Ismail, P. A. Watson, U. of York, Dpt of Electronics, York, UK ; P. K. Seng, Y.Y. Ja, All Asia Broadcast Centre, Technology Park Malaysia ; M. Thurai, J. D. Eastman, Rutherford Appleton Laboratory, Oxon, UK
- K06:05** *Variation of oceanic rain rate parameters derived from SSM/I*
L. S. Chiu, SAIC/General Sci. Corporation, Laurel, Maryland, USA ; A. T. C. Chang, Hydrological Sci. Branch, NASA/Goddard Flight Center, Maryland, USA
- K06:06** *Spatial variation of rainfall rate in Singapore*
J. T. Ong, School of Electrical and Electronic Engineering, Nanyang Technological U., Singapore
- K06:07** *Modelling of rain attenuation at a tropical location*
A. Maitra, Inst. of Radio Physics and Electronics U. of Calcutta, Calcutta, India
- K06:08** *A melting layer model investigated using doppler spectra recorded in Papua New Guinea*
M. D'Amico, Politecnico di Milano, Milano, Italy ; M. Thurai, Rutherford Appleton Laboratory, Oxon, UK

Session L07
Thursday, July 16 AM
Indoor Propagation

- L07:01** *Simulation of adaptive antennas in indoor environments by using ray-tracing*
R. P. Torres, C. Alonso, Dpt de Ingeniería de Comunicaciones. U. de Cantabria, Avda. de Los Castros, Spain
- L07:02** *UHF indoor measurements*
S. Salous, Dpt of Electrical Engineering and Electronics UMIST, Manchester, UK
- L07:03** *Indoor propagation measurements : propagation between floors*
J. Vähäkangas, A. Suhonen, J. Nuutien, Nokia Telecommunications / Radio Access Systems, Oulu, Finland

- L07:04** *Comparison between two geometric indoor propagation models : tube launching and ray launching*
S. J. Flores, L. F. Mayorgas, F. A. Jiménez, Dpt de Comunicaciones, Escuela U. de Gandia, Playa Gandia, Spain
- L07:05** *A hybrid method for indoor propagation modelling*
E. Tekbas, Kırıkale U., Engineering Faculty Electrical and Electronics Engineering Dpt, Kırıkale, Turkey
- L07:06** *Characterization of indoor propagation and building components loss factor*
F. Gaudaire, Y. Gabillet, Service acoustique CSTB - Centre Scientifique et Technique du Batiment, St Martin D'Heres, France
- L07:07** *Statistical model and simulation of indoor channel propagation in 1.8 GHz*
A. Affandi, Inst. Teknologi Sepuluh Nopember, Surabaya, Indonesia ; O. Paviot, Laboratoire Composants et Systèmes pour Télécommunications, Rennes, France
- L07:08** *An efficient method to analyze radiopropagation in enclosed spaces combining image theory with BSP*
R. P. Torres, L. Valle, M. Domingo, Dpt de Ingeniería de Comunicaciones, U. de Cantabria, Santander, Spain

Session M06
Thursday, July 16 AM
Medical Applications

- M06:01** *Iterative magnetic current reconstruction from cylindrical acquisition*
F. Las Heras, Grupo de Radiación, Dpt. Señales, Sistemas y Radiocomunicaciones U. Politécnica de Madrid ETSI Telecomunicación, Madrid, Spain
- M06:02** *Design and optimization of short antennas for phased-array hyperthermia applicator*
J. Nadobny, W. Wlodarczyk, P. Wust, H. Föhling R. Felix, Strahlenklinik/Hyperthermie, Berlin, Germany ; J. Nadobny, P. Deufhard, Konard-ZUSC-Zentrum für Informationstechnik Barlin, Berlin, Germany ; W. Wlodarczyk, G. Mönich, Inst. für Hochfrequenztechnik, Technische U. , Berlin, Germany
- M06:03** *Numerical studies of electromagnetic compatibility for combination of phased array hyperthermia applicator and magnetic resonance tomograph*
W. Wlodarczyk, J. Nadobny, P. Wust, H. Föhling, A. Salah, R. Felix, Strahlenklinik/Hyperthermie, Berlin, Germany ; W. Wlodarczyk, G. Mönich, Inst. für Hochfrequenztechnik, Technische U., Berlin, Germany
- M06:04** *Fan beam based high speed imaging of the chirp radar-type microwave computed tomography*
M. Miyakawa, K. Kai, R. De Che, Dpt of Information Engineering, Faculty of Engineering, Niigata U., Niigata, Japan
- M06:05** *Amplitude modulation based fast data acquisition of the chirp radar-type microwave computed tomography*
M. Miyakawa, M. Takabayashi, Dpt of Information Engineering, Faculty of Engineering, Niigata U., Niigata, Japan
- M06:06** *The equations of generalized electrodynamics for the transverse and longitudinal electromagnetic waves*
E. I. Nefyodov, Inst. of Radioengineer and Electronics RAS, Moscow, Russia ; A.A. Khadartsev, A. A. Yashin, A.A. Protopopov, T. I. Subbotina, State Scientific Research, Inst. of Modern Medical Technologies, Tula, Russia
- M06:08** *Electromagnetic fields induced inside human tissue : an analysis using solenoidal basis functions*
L. S. Mendes, S. A. de Carvalho, Faculdade de Engenharia Elétrica e de Computação U. Estadual de Campinas, Campinas, Spain

Session A08
Thursday, July 16 PM
Coherent Effects in Random Media

Organiser : V. Freilikher
 Chairs : V. Freilikher, H. Ogura

- A08:01** *Mie scattering in a magnetic field*
 B. van Tiggelen, D. Lacoste, CNRS/Laboratoire de Physique et modelisation des systèmes Condensés, U. Joseph Fourier, Magistère, Grenoble, France ; G. Rikken, A. Sparenberg, Grenoble High Magnetic Field Laboratory, Max-Planck Inst. für Festkörperforschung/CNRS, Grenoble, France
- A08:02** *Time dependance of the speckle in the multiple scattering of waves in random systems*
 R. Maynard, Physique et Modelisation des Milieux Condenses U. Joseph Fourier/CNRS/Magistere, Grenoble, France
- A08:03** *Spectral properties of classical waves in high contrast periodic media*
 A. Figotin, Dpt of Mathematics, U. of North Carolina, Charlotte, USA
- A08:04** *Numerical study of band gaps generated by randomly perturbed metallic photonic crystals*
 G. Guida, D. Maestre, G. Tayeb, P. Vincent, Laboratoire d'Optique, Faculté des Sci. et Techniques de St-Jérôme, Marseille, France
- A08:05** *Static phase and dynamics of microwaves in random media*
 P. Sebbah, O. Legrand, Laboratoire de Physique de la Matière Condensée, U. de Nice-Sophia Antipolis, Nice, France ; A. Z. Genack, Dpt of Physics, Queen College of CUNY, Flushing, NY, USA
- A08:06** *Statistics of microwave radiation near the localization threshold*
 A. Genack, M. Stoytchev, A. Chabanov, Dpt of Physics, Queen College of CUNY, Flushing, NY, USA
- A08:07** *Coexistence of ballistic transport, diffusion, and localization in surface disordered waveguides*
 V. Freilikher, The Jack and Pearl Resnik Inst. of Advanced Technology, Dpt of Physics, Bar-Ilan U. Ramat-Gan, Israël ; A.A. Maradudin, Dpt of Physics and Astronomy and Inst. for Surface and Interface Sci., U. of California, Irvine, USA ; J. A. Sanchez-Gil, Inst de Estructura de la Materia, C.S.I.C., Madrid, Spain ; I. Yurkevich, School of Physics and Space Research, U. of Birmingham, Birmingham, UK
- A08:08** *Disordered microwave cavities as a model for spectral correlations in the transition from diffusive to ballistic regimes*
 O. Legrand, F. Mortessagne, P. Sebbah, C. Vanneste, Laboratoire de Physique de la Matière Condensée, U. de Nice-Sophia Antipolis, Nice, France
- A08:09** *Scaling properties in highly anisotropic systems*
 C. M. Soukoulis, E. N. Economou, I. Zambetaki, S. Katsoprinaski, Research Center of Crete, Dpt of Physics, U. of Crete, Heraklion, Crete, Greece ; C. M. Soukoulis, Q. Li, Ames Laboratory and Dpt of Physics and Astronomy, Ames, Iowa, USA
- A08:10** *Can a thermal source be spatially coherent ?*
 J.-J. Greffet, R. Carminati, Lab EM2C Ecole Centrale Paris, Châtenay-Malabry, France
- A08:11** *Scattering of two-dimensional random heterogeneous media : comparison of radiative transfer and electromagnetic numerical simulations*
 J.-J. Greffet, J.-B. Thibaud, Lab. EM2C, UPR 288 CNRS, Châtenay-Malabry, France ; L. Roux, P. Mareschal, N. Vukadinovic, Dassault Aviation, Saint Cloud, France
- A08:12** *Experimental study of light scattering by well characterized two-dimensional randomly rough dielectric surfaces*
 M. O. Calvo, J. Greffet, Laboratoire EM2C, Ecole Centrale Paris, Châtenay-Malabry, France ; M. Josse, Commissariat à L'Energie Atomique, Centre d'Etudes Scientifiques et Techniques d'Aquitaine, Le Barp, France
- A08:13** *Scattering from an object on random rough surface stochastic green function*
 H. Ogura, Dpt. Electronics and Information Sci., Kinki U., Wakayama, Japan ; T. Kawanishi, Kyoto U. Venture Business Laboratory, Kyoto, Japan
- A08:14** *Frequency-angular correlations of the intensity of scattered wave from a random surface*
 T. Kawanishi, Kyoto U. Venture Business Laboratory, Kyoto, Japan ; H. Ogura, Dpt. Electronics and Information Sci., Kinki U., Wakayama, Japan

- A08:15** *Backscattering enhancement in the scattering from a cylindrical random rough metal surface*
Z. L. Wang, M. Izutsu, The Communications Research Laboratory, Koganei, Tokyo, Japan ; H. Ogura, Dpt. Electronics and Information Sci., Kinki U., Wakayama, Japan
- A08:16** *Near-field and far-field changes in the spectrum of light scattered from a randomly rough surface*
V. Shchegrov, A. A. Maradudin, Dpt. of Physics and Astronomy and Inst. for Surface and Interface Sci., U. of California
- A08:17** *Incoherent acoustic imaging in the ocean*
M. J. Beran, Faculty of Engineering, Tel Aviv U., Ramt Aviv, Israel
- A08:18** *Impurity induced local polariton states*
A.A. Lisiansky, L. I. Deych, Dpt of Physics, Queens College of City U. of New York, Flushing, NY
- A08:19** *Transverse spectra in two-way wave propagation in random media*
S. Frankenthal, Faculty of Engineering, Tel Aviv Univ., Ramt Aviv, Israel
- A08:20** *Dispersion relation for electromagnetic waves in a stochastically modulated dielectric superlattice*
A. R. McGurn, S. Simeonov, Dpt. of Physics, Western Michigan U., Kalamazoo, Michigan, USA ; A. A. Maradudin, Dpt of Physics and Astronomy, U. of California, Irvine, USA ; V. A. Ignatchenko, Yu. I. Mankov, M. V. Erementchouk, L. V. Kirensky Instit. of Physics, Krasnoyarsk, Russia
- A08:21** *Wave localization in random media : a path-integral approach*
G. Samelsohn, R. Mazar, Dpt of Electrical and Computer Engineering Ben-Gurion U. of the Negev, Beer-Sheva, Israel
- A08:22** *Modeling of high-frequency propagators in inhomogeneous background random media*
R. Mazar, Dpt of Electrical and Computer Engineering Ben-Gurion U. of the Negev, Beer-Sheva, Israel

Session B07

Thursday, July 16 PM

Detection and/or Imaging of Buried Objects

Organisers : Ch. Pichot, S. Caorsi

Chairs : D. Daniels, J. Cashman

- B07:01** *Advances in the ultrawideband radar imaging of buried mines*
D. Daniels, ERA Technology, Cleeve Road, Leatherhead, UK
- B07:02** *On the detection of buried objects from inductive arrays*
E.L. Miller, Dpt. of Electrical and Computer Engineering, Northeastern U., Boston, MA, USA ; W.C. Karl, Dpt. of Electrical and Computer Engineering, Boston U., Boston, MA, USA
- B07:03** *Electromagnetic inversion for multi-bistatic ground penetrating radar*
P. M. Johansen, C. M. Rappaport, A. J. Devaney, E. L. Miller, Center for Electromagnetic Research, Boston, MA, USA
- B07:04** *Imaging of buried objects from multi-look, multifrequency radar data in the fourier domain, including antenna effects*
J.D. Cashman, U. of New South Wales, Canberra, Australia ; Ch. Pichot, J.Y. Dauvignac, Laboratoire d'Electronique, Antennes et Télécommunications, Valbonne, France
- B07:05** *Nonlinear inversion of a buried object in TE-scattering*
B.J. Kooij, Center for Technical Geoscience, Laboratory of Electromagnetic Research, Dpt. of Electrical Engineering, Delft U. of Technology, Delft, The Netherlands ; M. Lambert, Laboratoire des Signaux et Systèmes, Gif-sur-Yvette, France
- B07:06** *An iterative scheme for the reconstruction of homogeneous penetrable objects using a boundary integral method*
S. Bonnard, M. Saillard, P. Vincent, Laboratoire d'Optique Electromagnétique, U. d'Aix-Marseille, Marseille, France
- B07:07** *Electromagnetic imaging of immersed metallic structures*
J.M. Geffrin, B. Duchêne, Laboratoire des Signaux et Systèmes, Plateau de Moulon, Gif-sur-Yvette, France

- B07:08** *On the characterization of a conductive body in a conductive earth using low-frequency asymptotic analyses*
G. Perrusson, M. Lambert, D. Lesselier, B. Duchêne, Laboratoire des Signaux et Systèmes, Gif-sur-Yvette, France ;
A. Charalambopoulos, G. Dassios, G. Kavvysas, U. of Patras, Greece ; B. Bourgeois, BRGM, France
- B07:09** *Underground tomogram from in-situ data measured in the cross-borehole configuration*
S-K. Park, H-K Choi, J-W Ra, Dpt of Electrical Engineering, Korea Advanced Inst. of Sci. and Technology, Taejon, Korea

Session C07
Thursday, July 16 PM
Advances Techniques in TLM Field Computation
Organiser : C. Christopoulos
Chairs : C. Christopoulos, M. Ney

- C07:01** *A modification of TLM method for dispersive media, suitable for experimental data*
J. Represa, I. Barba, A. C. L. Cabeceira, M. Panizo, J. Represa, Dpt. Electricidad y Electrónica. Facultad de Ciencias U. de Valladolid, Valladolid, Spain
- C07:02** *Application of the propagator approach to the modelling of dispersive media in TLM*
J. Rebel, P. Russer, Lehrstuhl für Hochfrequenztechnik, Technische U. München, München, Germany
- C07:03** *Investigation on the dispersion of 3D-TLM condensed nodes: Comparison with the FDTD Yee's scheme*
N. Pena, M. M. Ney, Laboratory for Electronics and Communication Systems, Ecole Nationale Supérieure des Télécommunications, Brest, France
- C07:04** *Recent enhancements to TLM for industrial use*
V. Trenkic, R. Scaramuzza, A. Wlodarczyk, Kimberley Communications Consultants Ltd., Nottingham, UK
- C07:05** *New TLM nodes for modelling sharp zones in resonant situations*
J.A. Porti, J. A. Morente, H. Magan, Dpt of Applied Physics, Faculty of Sci., U. of Granada, Granada, Spain
- C07:06** *Simulation of microwave circuits using TLM*
A. Vukovic, C. Christopoulos, Numerical Modelling Laboratory, Dpt of Electrical and Electronic Engineering, U. of Nottingham, Nottingham, UK
- C07:07** *TLM analysis of CPW bend used to provide a circular polarisation*
M. Malhas, R. Staraj, J.-L. Dubard, D. Pompéi, Laboratoire d'électronique, U. de Nice Sophia-Antipolis, Valbonne, France
- C07:08** *Field theoretical derivation of lumped element equivalent circuits for multichip module chip-Connections*
T. Mangold, Lehrstuhl fuer Hochfrequenztechnik, Technische U. Muenchen, Muenchen, Germany
- C07:09** *Comparison of TLM-GSCN and FD-TD dispersion characteristics*
V. Trenkic, Kimberley Communications Consultants Ltd., Nottingham, UK

Session D07
Thursday, July 16 PM
Hybrid Methods

- D07:01** *Hybrid FDTD-FETD method for 3D antenna modeling*
P.-Y. Garel, Ch. Pichot, J.-Y. Dauvignac, Laboratoire d'Electronique, Antennes et TELEcommunications, U. de Nice-Sophia-Antipolis/CNRS, Valbonne, France ; C. Dedeban, France Telecom/CNET, La Turbie, France
- D07:02** *Accurate and fast design of waveguide components by hybrid mode-matching/FE building blocks in a powerful CAD tool*
F. Arndt, R. Beyer, Th. Sieverding, P. Krauss, Microwave Dpt., U. of Bremen, Bremen, Germany
- D07:03** *New time domain integral equation approach for hybrid methods*
C. Girard, A. Reineix, M. Ariaudo, B. Jecko, IRCOM-UMR CNRS 6615, Limoges, France

- D07:04** *Computation of 3D anisotropic scatterers by several hybrid FEM/DEM methods*
H. Steve, Dassault Aviation, Saint-Cloud, France ; P. Soudais, ONERA/DEMR, Chatillon, France
- D07:05** *Analysis of high frequency electron devices using a hybrid FE/FD-TD technique*
A. Cidronali, G. Pelosi, Dpt of Electronics Engineering, U. of Firenze, Italy, G. Manara, A. Monorchio, Dpt of Information Engineering, U. of Pisa, Italy
- D07:06** *Improved FE-FCT method for the solution of gas discharge problems*
G. E. Georghiou, R. Morrow, A. C. Metaxas, Electricity Utilisation Group, Engineering Dpt., Cambridge U., Cambridge, UK
- D07:07** *Solution of nonlinear coupled electromagnetic-thermal problems using the finite integration method*
P. Pinder, T. Weiland, Darmstadt U. of Technology, Fachgebiet Theorie Elektromagnetischer Felder, Darmstadt, Germany
- D07:08** *A hybrid formulation combining FDTD and TDPO*
F. Le Bolzer, R. Gillard, J. Citerne, L.C.S.T. I.N.S.A., C.N.R.S. U.P.R.E.S.A. 6075, Rennes, France;
V. Fouad Hanna, France Telecom, CNET/DMR, France

Session E10
Thursday, July 16 PM
Discontinuities

- E10:01** *Multimode analysis of printed circuit lines by method of simultaneous diagonalization*
Y. O. Shlepnev, Eagleware Corporation, Tucker, GA, USA
- E10:02** *Efficient numerical method for microstrip discontinuities analysis*
M. Tellache, B. Haraoubia, Laboratoire LMH, Inst. d'Electronique, USTHB, Algiers, Algeria ; H. Baudrand, Laboratoire d'Electronique, ENSEEIHT, Toulouse, France
- E10:03** *Efficient analysis of passive microstrip elements using the matrix pencil method*
A. Samet, Ecole Polytechnique de Tunisie, La Marsa, Tunisie ; A. Bouallègue, Laboratoire des Systèmes de Télécommunications Ecole Nationale d'Ingénieurs de Tunis, Tunisie ; A. B. Kouki, F. M. Ghannouchi, Ecole Polytechnique de Montréal, Montréal, Canada
- E10:04** *Full-wave analysis of multimode waveguide discontinuities*
F. Huret, L. Kadri, Ph. Pannier, M. Arif, C. Seguinot, P. Kennis, F. Huret, Inst. d'Electronique et de Microélectronique du Nord, Dpt Hyperfréquences et Semiconducteurs, Villeneuve d'Ascq, France
- E10:05** *Analysis of discontinuities in a rectangular waveguide using hybrid numerical and spectral techniques*
V. E. Boria Esbert, H. Esteban, S. Cogollos, M. Ferrando, Dpt de Comunicaciones U. Politécnica de Valencia, Valencia, Spain
- E10:06** *Solution of the junction of TE₁₁-mode circular waveguides by the least squares method*
H. Oraizi, IRAN U. of Sci. and Technology, Dpt of Elect. Eng, Tehran, Iran

Session F07
Thursday, July 16 PM
Conformal and Smart Skin Antennas
Organiser : A. Priou
Chairs : A. Priou, G. Washington

- F07:01** *Electromagnetic smart structures*
A. Priou, U. of Paris X, Inst. of Technology, Avray, France
- F07:02** *Smart electromagnetic structures: a new paradigm for microwave technology*
G. Washington, E. Kiely, H-S Yoon, Ohio State U., USA
- F07:03** *On layer and between the layers connections for smart skin applications*
J. Piotr Starski, Chalmers U. of Technology, Division of Microwave Technology, Gothenburg, Sweden

- F07:04** *A 64 element broad band volumetric array antenna*
A. Tennant, M. Precious, Dpt. of Electronic Engineering, The U. of Hull, Hull
- F07:05** *Numerical and experimental tools for conformal array performance investigation*
Chr. v. Winterfeld, H. Gniss, P. Knott, W. Söntgerath, FGAN Forschungsinstitut für Hochfrequenzphysik (FHP), Wachtberg, Germany
- F07:06** *Pattern synthesis for large conformal array analysis, using two-port elements for polarimetric correction*
O. Schmid, FGAN Forschungsinstitut für Hochfrequenzphysik (FHP), Wachtberg, Germany
- F07:07** *Analysis of conformal microstrip lines and antennas using the nonorthogonal FDTD method*
K. Ravard, R. Gillard, J. Citerne, Laboratoire Composants et Systèmes pour Télécommunications, UPRES-A-6075, LCST-INSA, Rennes, France
- F07:08** *Improved asymptotic solutions for the calculation of the mutual coupling between the elements of a conformed array of patch antennas*
F. Molinet, Société MOTHE-SIM, Le Plessis-Robinson, France
- F07:09** *Microstrip patch antenna on conical structures*
T. Girard, R. Staraj, E. Cambiaggio, LEAT-UPRESA CNRS 6071, U. de Nice-Sophia Antipolis, Valbonne, France ;
F. Müller, LSR/LAT - UPRES-A CNRS 6075 U. de Rennes, Rennes, France
- F07:10** *Conformal array antenna for aircraft application*
M. Caplot, C. Chekroun, Thomson-CSF, Radars and Countermeasures Division (RCM), Elancourt, France ;
T. Lemoine, Thomson-CSF, Central Research Laboratory (LCR), Orsay, France

Session G11

Thursday, July 16 PM

Photonic Crystals : from Microwave to Optics

Organiser : J-M. Lourtioz

Second part :

Chairs : J-M. Lourtioz, E. Yablonovitch

- G11:06** *Microwave antennas on photonic crystal substrates*
(Overview) E. R. Brown, Defence Advanced Research Projects Agency, Lexington, MA, USA
- G11:07** *Arrays grating lobes reduction using metallic photonic band-gap materials*
G. Poilasne, Ph. Pouliguen, K. Mahdjoubi, C. Terret, LSR/LAT UPRES-A CNRS 6075, U. de Rennes 1, Rennes, France ; Ph. Gelin, LEST UMR CNRS 6616, ENST Bretagne, Brest, France
- G11:08** *Photonic band gap materials for microstrip patch antennas*
M.S. Denis, A. Reineix, M. Thevenot, B. Jecko, IRCOM-UMR CNRS 6615, Faculte des Sci., Limoges, France
- G11:09** *Band gap engineering in micro-wave PBG material*
F. Gadot, A. de Lustrac, P. Crozat, J. M. Lourtioz, Inst. d'Electronique Fondamentale, U. Paris-sud, Orsay, France ;
A. Ammouche, Groupe d'Electromagnétisme Appliqué, IUT de Ville d'Auray, U. Paris X, Ville d'Avray, France
- G11:10** *Theoretical and experimental study of defect mode in graphite PBG material*
F. Gadot, A. de Lustrac, P. Crozat, J. M. Lourtioz, Inst. d'Electronique Fondamentale, U. Paris XI, Orsay, France ;
A. Ammouche, Groupe d'Electromagnétisme Appliqué, IUT de Ville d'Auray, U. Paris X, Ville d'Avray, France ;
D. Cassagne, C. Jouanin, Groupe d'Etude des semiconducteurs, U. de Montpellier II, Montpellier, France

Session G12
Thursday, July 16 PM
Superconducting Devices : Modeling and Desing
Organisers : I. Vendik, P. Guillon
Chairs : I. Vendik, P. Guillon

- G12:01** *Modeling of pass-band HTS microstrip filters based on a parallel-array of half-wavelength resonators*
I. Vendik, V. Kondratiev, D. Kholodniak, M. Goubina, A. Svishchev, Microwave Microelectronics Lab., Dpt. of Microelectronics and Radio-Engineering, St.-Petersburg Electrotechnical U., St.-Petersburg, Russia
- G12:02** *Miniature microwave filters for HTS applications*
F. Rouchaud, V. Mdrangeas, M. Aubourg, P. Guillon, I.R.C.O.M. - U. of Limoges - UMR CNRS 6615, Limoges, France ; B. Theron, M. Maignan, ALCATEL ESPACE, Toulouse, France
- G12:03** *HTS filters for satellite output multiplexers*
A. Baumfalk, H. Chaloupka, S. Kolesov, Dpt of Electrical Engineering, U. of Wuppertal, Wuppertal, Germany ; F.-J. Goertz, Bosch Telecom GmbH, Backnang, Germany, M. Klauda, Robert Bosch GmbH, Stuttgart, Germany
- G12:04** *Modeling of coupled HTS coplanar waveguides*
I. Vendik, A. Deleniv, Microwave Microelectronics Lab., Dpt. of Microelectronics and Radio-Engineering, St.-Petersburg Electrotechnical U., St.-Petersburg, Russia
- G12:05** *Quasioptical phonon cooled NbN hot electron bolometric mixers for terahertz frequencies*
G. Goltsman, S. Svechnikov, P. Yagoubov, B. Voronov, E. Menshikov, E. Gershenzon, Dpt of Physics, Moscow State Pedagogical U., Moscow 119435, Russia
- G12:06** *Microwave devices based on integrated HTS/Ferroelectric structures*
S. Gevorgian, E. Carlsson, P. Linner, Dpt of Microwave Technology Chalmers U. of Technology, Gothenburg, Sweden
- G12:07** *Investigation of characteristics of different thickness HTS films at microwaves*
M.M.Gaidukov, E. K. Hollmann, D. P. Dovgan, O. U. Buslov, S. V. Razumov, A. V. Tumarkin, St. Petersburg Electrotechnical U., St.Petersburg, Russia
- G12:08** *Recent advances on superconducting microstrip patch antennas*
H. C.C. Fernandes, G. F. Da Silveira Filho, Dpt of Electrical Engineering - Federal U. of Rio Grande do Norte, Natal/RN - Brazil

Session H07
Thursday, July 16 PM
Scattering by Complex Structures - Novel Applications I
Workshop on Complex Media and Measurement Techniques
Organisers : D. I. Kaklamani, G. S. Stamatakis
Chairs : D. I. Kaklamani, O. Breinbjerg

- H07:01** *Applying the method of auxiliary sources on large scale and complex structures*
R. S. Zaridze, B. G. Bit-Babik, Tbilisi State U., Republic of Georgia; D. P. Economou, N. K. Uzunoglu, Dpt of Electrical and Computer Engineering, National Technical U. of Athens, Greece
- H07:02** *Light scattering and light confinement in mesoscopic systems*
O. J. F. Martin, Laboratory of Field Theory and Microwave Electronics, Swiss Federal Inst. of Technology, Zurich, Switzerland, C. Girard, CEMES/CNRS, Toulouse, France
- H07:03** *Calculation of the radar cross section (RCS) of complex radar targets using the physical optics approximation*
N. K. Uzunoglu, P. V. Frangos, D. I. Kaklamani, Dpt of Electrical and Computer Engineering, National Technical U. of Athens, Greece; E. Boulougouris, Dpt of Naval Engineering, National Technical U. of Athens, Greece; S. Pintzos, Greek Naval Research Center (GETEN), Athens, Greece
- H07:04** *Comparison of the UTD and EFIE method for the analysis of electrically large reflectors*
J. Hartman, D. Fasold, Fachhochschule Muenchen, Electrical and Electronics Engineering Dpt, Laboratory for Satellite Communications, Munich, Germany; D. Blaschke, Daimler-Benz Aerospace GmbH, Dornier Satellitensysteme GmbH, Munich, Germany

- H07:05** *Uniform High-Frequency description of singly, doubly and vertex diffracted ray contributions to the currents on a polygonal plate*
S. Maci, M. Albani, F. Capolino, Information Engineering Dpt, U. of Siena, Siena, Italy
- H07:06** *A comparative study of the plane wave scattering by perfectly conducting strip gratings and unidirectionally conducting surfaces*
O. Breinbjerg, Dpt of Electromagnetic Systems, Technical U. of Denmark, Lyngby, Denmark ; F. J. N. Geeraert, Nokia Mobile Phones A/S, Copenhagen, Denmark; M. Lumholt, TICRA, Copenhagen, Denmark
- H07:07** *Extension of the Maliuzhinets method to the scattering by anisotropic impedance wedges illuminated at oblique incidence*
G. Manara, P. Nepa, Dpt of Information Engineering, U. of Pisa, Pisa, Italy; G. Pelosi, Dpt of Electronic Engineering, U. of Florence, Florence, Italy

Session H08

Thursday, July 16 PM

Scattering by Complex Structures - Novel Applications II

Workshop on Complex Media and Measurement Techniques

Organisers : G. S. Stamatakis, D. I. Kaklamani

Chairs : G. S. Stamatakis, K. Kyriaki

- H08:01** *The cylindrical localized approximation to speed up computations in the generalized Lorentz-Mie theory for cylinders*
G. Gouesbet, K. F. Ren, G. Grehan, LESP/UMR 6614 - CORIA, CNRS U. & INSA de Rouen, France
- H08:02** *The invisible part of an object or source distribution. Maxwell and radiative transfer theory of objects and sources generating zero intensity outside the distribution.*
B. J. Hoenders, U. of Groningen, Inst. of Theoretical Physics, The Netherlands
- H08:03** *Integral equation solution to the scattering of light by systems of red blood cells*
G. S. Stamatakis, N. K. Uzunoglu, Dpt of Electrical and Computer Engineering, National Technical U. of Athens, Greece
- H08:04** *The inverse scattering problem for dielectric bodies - An application to shape and refractive index analyzer*
D. Gintides, K. Kyriaki, Dpt of Mathematics, National Technical U. of Athens, Greece
- H08:05** *A recent advance in light-scattering theory: the development of a rigorous and complete solution to multiparticle-scattering problems*
Yu-lin Xu, Dpt of Astronomy, U. of Florida, Gainesville, USA
- H08:06** *Optical characterization of complex structures formed in combustion systems*
P. Massoli, Istituto Motori-CNR, Naples, Italy

J. I. P. R. 4 - Session I06

Thursday, July 16, PM 13:40-15:20

Polarimetric Diffraction and Scattering and Applications

Organiser : F. Molinet

Chair : F. Molinet

- I06:01** *Recent advances in polarimetric diffraction and scattering : physical diffraction phenomena versus abstract mathematical concepts in radar polarimetry*
(Overview) F.A. Molinet, Société MOTHEM, Le Plessis-Robinson, France.
- I06:02** *Prediction of IN-BAND microstrip antennas array RCS*
P. Rigoland, C. Terret, Laboratoire Antennes et Télécommunications URA 834, Université de Rennes I, Rennes, France ; P. Pouliguen, Centre d'Electronique de l'ARMement, Bruz, France.

- I06:03** *Electromagnetic analysis of dual polarization wide band antennas and arrays*
P. Poey, X. Begaud, Laboratoire Antennes et Réseaux/ Structures Rayonnantes URA 834, Université de Rennes I, Rennes, France.
- I06:04** *Particle shape determination from polarization fluctuations of scattered radiation*
K.I. Hopcraft, B. P. Ablitt, E. Jakeman, Dpt of Theoretical Mechanics University of Nottingham, Nottingham, UK

J. I. P. R. 4 - Session I07

Thursday, July 16, PM 15:40-17:20

PLENARY SESSION AND PANEL DISCUSSION

Organiser : W.M. Boerner

INVITED KEYNOTE ADDRESS

- I07:01** *What do mathematics afford to electromagnetic and acoustic scattering ?*
(Overview) P.C. Sabatier, Université de Montpellier II, Montpellier, Languedoc, France.

PANEL DISCUSSION

Chairman : F. Molinet

- I07:02** *Recent advances in POL-SAR and POL-InSAR image processing*

Panel-Members:

T.L. Ainsworth, W.M. Boerner, S.R. Cloude, E. Krogager, J.S. Lee, T. Le Toan, E. Pottier, D.L. Schuler, A.J. Sieber, R.N. Treuhaft, G. Wanielik, R. Winter, H.A. Zebker.

Session J04

Thursday, July 16, PM

Scattering from Natural Bare Soils

Organiser : F. Mattia

Chairs : F. Mattia, T. Le Toan

- J04:01** *New approaches to the observation and modelling of the radar backscatter from soil surfaces observations of coherent emissions from soils*
T. Le Toan, M. Davidson, CESBIO, Toulouse, France ; P. Borderies, I. Chenerie, ONERA, Toulouse, France ; F. Mattia, ITIS-CNR, Matera, Italy ; T. Manninen, VTT, Espoo, Finland ; M. Borgeaud, ESA/ESTEC, Noorwijk, NL
- J04:02** *Multiscale surface roughness of natural bare soil*
T. Manninen, VTT Automation, Espoo, Finland
- J04:03** *Measuring roughness at pixel scales: from 1 meter to 25 meter profiles*
M. Davidson, CESBIO, France ; M. Borgeaud, ESA/ESTEC, Noorwijk, NL ; F. Mattia, ITIS-CNR, Matera, Italy ; P. Borderies, I. Chenerie, ONERA, Toulouse, France ; T. Manninen, VTT, Espoo, Finland
- J04:04** *On the backscattering from multiscale rough surfaces*
F. Mattia, ITIS-CNR, Matera, Italy ; T. Le Toan, CESBIO, Toulouse, France
- J04:05** *Backscattering simulation from soil surfaces*
D. Casarano, F. Posa, INFN and Politecnico di Bari, Bari, Italy ; F. Mattia, ITIS-CNR, Matera, Italy ; T. Le Toan, France
- J04:06** *On inverting backscattering from bare surfaces*
G. Satalino, G. Pasquariello, IESI-CNR, Matera, Italy ; T. Le Toan, M. Davidson, CESBIO, Toulouse, France
- J04:07** *Observations of coherent emissions from soils*
T. Schmugge, T. J. Jackson, USDA/ARS Hydrology Lab, Beltsville, MD ; P. E. O'Neil, NASA/GSFC Hydrological Sci. Branch, Laboratory for Hydrospheric Processes, Greenbelt, MD ; M. B. Parlange, Dpt of Geography and Environment Engineering Johns Hopkins U. Baltimore, MD, USA

Session J09
Thursday, July 16, PM
Radar Remote Sensing of Forests

- J09:01** *Characterizing tropical vegetation canopies using multi-frequency interferometry and polarimetry*
 E. Rodriguez, Jet Propulsion Laboratory, California Inst. of Technology, Pasadena, CA, USA
- J09:02** *Surface roughness effects on active & passive microwave remote sensing of forests*
 R. H. Lang, Dpt of Electrical Engineering & Computer Sci., The George Washington U., Washington DC, USA ;
 N. S. Chauhan, Hughes STX Corp, Lanham, MD, USA ; D. M. Le Vine, NASA Goddard Space Flight Center,
 Greenbelt, MD, USA
- J09:03** *Measurements over forested areas : a microwave attenuation and backscattering experiment at 2.2 and 5.8 GHZ*
 A. V. Bosisio, M. Dechambre, J.-P. Vinson, J.-Y. Delahaye, Centre d'étude des Environnements Terrestre et
 Planétaire, Vélizy, France
- J09:04** *Contribution to the analysis of the interaction of an electromagnetic wave with forest. A full wave approach based on an integral representation*
 L. Petit, H. Roussel, W. Tabbara, U. Paris VI, Division ondes-LSS/ Supelec, Gif/Yvette, France

Session K07
Thursday, July 16, PM
Propagation Effects and Models
 Organisers : L. Bertel, Y. Beniguel
 Chairs : L. Bertel, B. Arbeseer-Rastburg

- K07:01** *H.F. channel modelling including antennas and propagation effects*
 P. Parion, L. Bertel, Laboratoire de Structures rayonnantes / Radiocommunications, U. de Rennes I, Rennes, France
- K07:02** *Practical methodology for estimation of HF channel response*
 F. Arikan, Dpt of Electrical and Electronics Engineering, Hacettepe U., Ankara, Turkey ; O. Arikan, Dpt of
 Electrical and Electronics Engineering, Bilkent U., Ankara, Turkey
- K07:03** *First experimental approach to the VHF channel characterization using collocated antenna diversity in forest environment*
 T. Dupaquier, Ecole Supérieure et D'Application des Transmissions, Rennes Armées, France ; M. Le Palud, Centre
 de Recherche des Ecoles de Coëtquidan, Guer, France ; L. Bertel, U. de Rennes I, Laboratoire de Structures
 Rayonnantes / Radiocommunications, Rennes , France
- K07:04** *VLF/LF channel characterization*
 C. Tanguy, M. Depiesse, P. Portala, DGA/DCE/CTSN/SN/TE, Toulon Naval, France
- K07:05** *Characterisation and simulation of the HF transmission channel*
 Y.M. Leroux, J. Menard, J. P. Jolivet, France Telecom, CNET, DMR/TSI, Lannion, France
- K07:06** *Mobile radio channel characterisation with UMIST chirp sounder*
 S. Salous, Dpt of Electrical Engineering and Electronics UMIST, Manchester, UK
- K07:07** *Possible applications of HF colocated antennas*
 F. Marie, L. Bertel, U. de Rennes I, Laboratoire de Structures rayonnantes / Radiocommunications, Rennes, France ;
 Y. Erhel, Centre de Recherche des Ecoles de Coëtquidan, Guer, France
- K07:08** *Characterization of ionospheric scintillation errors : a comparison between different models*
 Y. Béniguel, I.E.E.A, Courbevoie, France
- K07:09** *High time domain resolution channel sounder operating in the 60 GHz band*
 S. Guillouard, G. El Zein, J. Citerne, Laboratoire Composants et Systèmes pour Télécommunications, Structures
 Rayonnantes I.N.S.A. de Rennes, Rennes, France

K07:10 *Performances of two coherent spread spectrum DS/FH RAKE receivers for the troposcatter channel*

C. Moy, G. El Zein, J. Citerne, Laboratoire Composants et Systèmes pour Télécommunications, Structures Rayonnantes I.N.S.A. de Rennes, Rennes, France

K07:11 *Measurement of radiated power at VLF/LF*

P. Hansen, J. Chavez, Space and Naval Warfare Systems Center, San Diego, San Diego, CA, USA ; E. Courtland, Naval Computer and Telecommunications Command, Washington, DC, USA

Session L08

Thursday, July 16, PM

Frontiers of Electromagnetics Research

Organiser : U. Unrau

Chairs : U. Unrau, B. Lehnert

L08:01 *Failure of Maxwell electrodynamics*

J.P. Wesley, Blumberg, Germany

L08:02 *The impact of topology and group theory on future progress in electromagnetics research*

T. W. Barrett, BSEI, Vienna, VA, U.S.A.

L08:03 *An extended electromagnetic theory*

B. Lehnert, Royal Institute of Technology, Stockholm, Sweden

L08:04 *An explicit example of a family of non-planar free-space electromagnetic waves containing magnetic scalar potentials*

Héctor A. Múnera, Centro Internacional de Fisica, Bogotá, Colombia ; O. Guzmán, Dpt. de Fisica, U. Nacional Bogotá, Colombia

L08:05 *Relation between weber's electrodynamics and Maxwell's equations*

A. K. Torres de Assis, Inst. of Physics, State U. of Campinas, Campinas, SP, Brazil

L08:06 *Motional induction without a magnetic field*

J.P. Wesley, Blumberg, Germany

L08:07 *Local instantaneous energy and momentum densities of the free electromagnetic field*

V. Ilyin, Saratov State U., Saratov, Russia ; I. Nefedov, Inst. of Radio Engineering & Electronics, Academy of Sci., Saratov, Russia

L08:08 *Electrodynamics in an electric cusp and uncharged particle acceleration by electric reconnection*

H. Kikuchi, Nihon U., College of Sci. and Technology, Tokyo, Japan

L08:09 *Photon tunneling experiments and some aspects of their interpretation*

A. Enders, Institut für Elektromagnetische Verträglichkeit, Technische Universität Braunschweig, Braunschweig, Germany

Session M07

Thursday, July 16, PM

Material Measurements II

Workshop on Complex Media and Measurement Techniques

Organiser : Ph. Gelin

Chairs : Ph. Gelin, M. Merceur

M07:01 *Measurement of microwave characteristics of materials a working group for standardization*

N. Bardy, Commissariat à l'Energie atomique, Centre d'Etude Scientifique et Techniques d'Aquitaine, Le Barp, France

M07:02 *Improvement of measurement performance of an open-ended waveguide characterization method*

O. Tantot, P. Guillon, I.R.C.O.M. - U. of Limoges, Limoges, France

M07:03 *Electromagnetic characterization of high temperature superconductors : state of the art in France*

J.-C. Carru, IEMN, U. de Lille 1, Villeneuve d'Ascq, France ; M. Pyee, LDIM, U. de Paris 6, Paris, France

- M07:04** *A microwave technique for the broadband determination of the complex permeability tensor components of magnetized ferrite*
P. Queffelec, LEST, U. de Bretagne Occidentale, UFR Sci., Brest, France ; Ph. Gelin, Enst de Bretagne, Brest, France
- M07:05** *Microwave material characterization using focused systems*
S. Bolioli, M. Lopez, ONERA-DEMUR/APR, Toulouse, France
- M07:06** *Electromagnetic characterization of heterogeneous chiral material using a free-space compact range system*
E. Chung, B. Sauviac, V. Vineras-Lefebvre, J. P. Parneix, Laboratoire PIOM, E.N.S.C.P Bordeaux, Talence, France
- M07:07** *Non destructive testing of radar absorbing materials for industrial production stealthy missiles*
E. Marouby, E. Perez, A. Roussaud, E. Ongareau, J. P. Levrel, Matra Bae Dynamics, Sella Saint Denis, France
- M07:08** *The determination of surface resistance for microwave antennas using dielectric resonator cavity techniques*
B. Givot, 3M Company, St. Paul, MN, USA ; R. Geyer, NIST, Electromagnetic Fields Division, Boulder, CO, USA
- M07:09** *How wide frequency band dielectric spectroscopy contributes to explain chemical reactions under microwaves*
O. Meyer, S. Chevalier, A. Fourier-Lamer, Laboratoire de Dispositifs Infrarouge et Micro-ondes, Université Paris VI, Paris, France
- M07:10** *Current density measurements in space plasmas*
G. M. Avez, V. Krasnosel'skikh, P. Ferreau, LPCE / CNRS, Orléans, France

Session A09
Friday, July 17, AM
Scattering I

- A09:01** *Near-field scattering of a ship in the sea due to a down-looking antenna*
S.-K. Jeng, National Taiwan U., Dpt of Electrical Engineering, Taipei, Taiwan
- A09:02** *Scattering at a rotating cylinder*
P. Hillion, Inst. Henri Poincaré, Le Vésinet, France
- A09:03** *Electromagnetic magnus effect*
P. Hillion, Inst. Henri Poincaré, Le Vésinet, France
- A09:04** *Point source field scattering by the diffuse conducting cylinder in the plane waveguide*
T.I. Bichetskaya, G. I. Makarov, St. Petersburg U., Inst. of Radiophysics, St. Petersburg, Russia
- A09:05** *The delta boundary operator (DBO) approach to electromagnetic scattering*
I. D. King, Defence Evaluation & Research Agency, Wors, UK
- A09:06** *Modified physical optics approach for line current wave scattering by coated planar strips*
A. Andrenko, M. Ando, Dpt. of Electrical & Electronic Eng., Tokyo Inst. of Technology, Tokyo, Japan

Session A10
Friday, July 17, AM
Structure Complex

- A10:01** *Multi-layer coatings with random optical thickness*
H. E. Rowe, Stevens Inst. of Technology, Dpt. of Electrical and Computer Engineering, New Jersey, USA ; N. A. Jackaman, Lucent Technologies, Holmdel, NJ, USA
- A10:02** *Optical response of multilayer surface relief gratings with non-identical faces*
G. Granet, J.-P. Plumey, J. Chandezon, Laboratoire des Sci. et Matériaux pour l'Electronique, et d'Automatique Unité Mixte de Recherche, U. Blaise Pascal, Les Cézeaux Aubière, France
- A10:03** *Symmetry of the field transmitted by bi-periodic metallic grids*
A. Sentenac, D. Maystre, Laboratoire d'Optique, Faculté des Sciences et Techniques de St-Jérôme, Marseille, France

- A10:04** *The magnetic field formulation applied on 2D axe-symmetrical magneto-dynamics problems with physical properties complexes*
F. L. S. Garcia, G. Meunier, P. Fouassier, Laboratoire d'Électrotechnique de Grenoble - INPG/ENSIEG, Domaine U., Saint Martin d'Hères, France
- A10:05** *An efficient method for synthesizing dielectric structures including two frequency selective surfaces*
G. Salin, Dassault Electronique, Saint Cloud, France
- A10:06** *The problems of mathematical simulation of anisotropic waveguides and resonators of microwaves and EHF ranges*
Eu. I. Nefyodov, Institute of Radio electronics of Russian Academy of Sciences, Moscow, Russia

Session B08
Friday, July 17, AM
Electromagnetic Imaging for Biomedical Applications
Organisers : Ch. Pichot, S. Caorsi
Chairs : S. Caorsi, J. Ch Bolomey

- B08:01** *Forward solution match issues affecting iterative inverse scattering approaches*
P.M. Meaney, K.D. Paulsen, J.T. Chang, Thayer School of Engineering, Hanover, NH, USA
- B08:02** *Inverse scattering approaches for electromagnetic hazard prediction*
S. Caorsi, Dpt of Electronics, U. of Pavia, Pavia, Italy ; A. Massa, Dpt of Biophysical and Electronic Engineering, U. of Genoa, Genova, Italy
- B08:03** *Precise microwave imaging for the quantitative assessment of biological tissues*
J.T. Chang, K. Paulsen, P.M. Meaney, M. Fanning, Thayer School of Engineering, Dartmouth College, Hanover, USA ; K. Paulsen, Norris Cotton Cancer Center, Dartmouth-Hitchcock Medical Center, Lebanon, USA
- B08:04** *Inversion methods in chirp radar-type microwave computed tomography*
M. Bertero, INFN and DISI, U. di Genova, Genova, Italy ; M. Miyakawa, Dpt. of Information Engineering, Niigata-shi, Japan
- B08:05** *Two-dimensional profile reconstruction of biological objects based on non-linear optimization*
T.A. Maniatis, K.S. Nikita, N. Uzunoglu, Dpt. of Electrical and Computer Engineering, National Technical U. of Athens, Athens, Greece
- B08:06** *Parallelisation of a newton-kantorovich reconstruction algorithm for microwave tomography*
J. Mallorqui, T. Broquetas, Dpt of Signal Theory and Communications, U. Politecnica de Catalunya, Barcelona, Spain ; N. Joachimowicz, J.Ch. Bolomey, Supélec, Gif-sur-Yvette, France
- B08:07** *Microwave tomography for physiological imaging of myocardial ischemia and infarction*
S.Y. Semenov, Laser and Applied Technologies Laboratory, Carolinas Medical Center, Charlotte, NC, USA
- B08:08** *Optimization of the dynamic imaging performances of a 2.45 Ghz planar microwave camera*
A. Joisel, J.Ch. Bolomey, Electromagnetic Research Dpt., Supélec, Gif-sur-Yvette, France
- B08:09** *Kalman filtering in contacting microwave radiometry*
P. Tognolatti, Dpt di Ingegneria Elettrica, U. dell'Aquila, L'Aquila, Italy ; F. Bardati, DISP Roma Tor Vergata U., Roma, Italy

Session C08
Friday, July 17, AM
Frequency Domain Methods

- C08:01** *Spatial domain evaluation of MoM matrix elements*
J. Parlebas, R. Schertlen, W. Wiesbeck, Inst. für Höchstfrequenztechnik und Elektronik U. of Karlsruhe, Karlsruhe, Germany
- C08:02** *RCS computation using high order derivatives*
D. Volpert, ONERA CERT Dpt Traitement de l'Information et Modelisation, Toulouse, France

- C08:03** *Fast algorithm applied to bem to the analysis of cutoff wavenumbers of ridged waveguides*
G. Fontgalland, Federal Centre Technological Education of Maranhao, Sao Luis, MA, Brazil ; H. Baudrand, E.N.S.E.E.I.H.T, Toulouse, France ; M. Guglielmi, European Space and Technology Center, Noordwijk, The Netherlands
- C08:04** *Imroved spectral iteration technique for the scattering from metallic cylinders*
G. Di Massa, S. Costanzo, Dpt di Elettronica, Informatica e Sistemistica U. della Calabria, Arcavacata di Rende, Italy
- C08:05** *Dyadic green's function in spectral domain for the analysis of multilayer cylindrical structures*
M. Thiel, A. Dreher, Deutsches Zentrum fur Luft-und Raumfahrt (DLR), Insit. fur Hochfrequenztechnik, Oberpfaffenhofen, Wessling, Germany
- C08:06** *Electromagnetic field computation in axisymmetric RF structures with BEM applied to multipacting analysis*
P. Yla-Oijala, J. Sarvas, Rolf Nevanlinna Inst., U. of Helsinki, Helsinki, Finland
- C08:07** *A hybrid method in the analysis of planar waveguides*
A. Büyükkaksoy, Gebze Inst. of Technology Faculty of Sci., Kocaeli , Turkey
- C08:08** *On the charge-modeling capabilities of a class of current basis functions*
L. Gürel, K. Sertel, I. Kürsat Sendur, Bilkent U., Dpt. of Electrical and Electronics Eng., Ankara, Turkey
- C08:09** *A new method for electromagnetic simulation of UMMIC's*
J. Dai, H. F. Jin, Y. W. Jin, Y. S. Wu, Dpt. of Electronic Eng. Tianjin U., Tianjin, China
- C08:10** *Time and frequency features of resonant wave scattering by waveguide open resonators*
N. P. Yashina, Inst. of Radiophysics and Electronics, Ukrainian National Academy of Sci., Kharkov, Ukraine
- C08:11** *The moment method in the diffraction problems by the structures consisting of coaxial circular disks*
A. N. Khizhnyak, Kharkov State Academy of Civil Engineering Dpt of Physics, Kharkov, Ukraine
- C08:12** *Analysis of coaxial mounting and probe structure*
M. V. Davidovich, Saratov State Technical U., ED&ID Dpt, Saratov, Russia

Session D08
Friday, July 17, AM
Computational Electromagnetics in EMC Applications
Organisers : L. Pichon, A. Razek
Chairs : L. Pichon, A. Razek

- D08:01** *Wire line modelling by the finite element method*
M. Feliziani, Dpt of Electrical Engineering, U. of l'Aquila, L'Aquila, Italy ; F. Maradei, Dpt of Electrical Engineering U. of Rome « La Sapienza », Rome Italy
- D08:02** *Use of finite element method to optimise the anechoization of faraday box*
C. Vollaie, L. Nicolas, G. Clerc, G. Rojat, CEGELY Ecole centrale de Lyon, Ecully, France
- D08:03** *EM field numerical analysis of nonperfectly shielded enclosures in time domain*
M. Feliziani, Dpt of Electrical Engineering, U. of l'Aquila, L'Aquila, Italy ; F. Maradei, Dpt of Electrical Engineering U. of Rome « La Sapienza », Rome Italy
- D08:04** *Fast estimation of shielding efficiency of ferromagnetic material using an effective reluctivity*
D. Lederer, A. Kost, Inst. Für El. Engietechnik, TU Berlin, Berlin, Germany
- D08:05** *Recent improvements of the time domain methods applied to EMC problems*
A. Reineix, B. Jecko, F. Jecko, IRCOM, Limoges, France
- D08:06** *Calculation of large microwave antennas. Hybrid solution including gaussian mode analysis*
J. Deagostini, Y. Beniguel, IEEA, Coubevoie, France ; W. Tabbara, LSS, Supélec, Plateau de Moulon, Gif-sur-Yvette, France
- D08:07** *3D electromagnetics with MoM on PC's*
J. P. Estienne, Matra Systeme & Information, Toulouse, France

- D08:08** *Simulation of complex systems in EMC*
C. Christopoulos, Numerical Modelling Laboratory, Dpt of Electrical and Electronic Engineering U. of Nottingham, Nottingham, UK
- D08:09** *Analysis of the computational efficiency of domain decomposition using admittance matrix networks*
D. Lacour, X. Ferrieres, S. Bertuol, V. Gobin, J. P. Parmantier, ONERA, Meudon, France
- D08:10** *A numerical approach of the behaviour of a FACT component and his package submitted to an electromagnetic aggression*
G. Akoun, C. Tavernier, Aerospatiale-Suresnes, Louis Bleriot Corporate Research Center, France ; O. Coumar, Aerospatiale-Les Mureaux, Space & Defense Business Center, France

Session E11
Friday, July 17, AM
Transmissions Lines

- E11:01** *Effect of ionosphere 3D-disturbance on VLF-propagation in the curved waveguide*
T.I. Bichutskaya, G. I. Makarov, St. Petersburg U., Inst. of Radiophysics, St. Petersburg, Russia
- E11:02** *Analysis of planar transmission lines with floating strips*
T. N. Chang, E.E. Dpt, Tatung Inst. of Technology, Taipei, Taiwan
- E11:03** *The problems of syntheses and diagnostics dielectric layer and effect of intertype coupling of own electromagnetic fields*
V. V. Yatsik, The A. Ya. Usikov Inst. of Radiophysics and Electronics of the National Academy of Sci. of Ukraine, Kharkov, Ukraine
- E11:04** *Propagation characteristics of dielectric waveguides by multilayer gratings with periodic surface relief*
T. Yamasaki, Dpt. of Industrial Technology, Electric and Electronic Engineering, Junior College, Nihon U., Chiba, Japan ; S. Hishinuma, T. Hinata, T. Hosono, Dpt of Electrical Engineering, College of Sci. and Technology, Nihon U., Chiba, Japan
- E11:05** *Finite element and finite difference methods for dielectrical waveguide problems*
A. Delitsin, A. N. Bogolyubov, A. V. Krasilnikova, A. G. Sveshnikov, Moscow State U. Physical Dpt., Mathematical Chair, Moscow, Russia

Session F06
Friday, July 17, AM
Conformal Antennas and Arrays

- F06:01** *Conformal array antenna for leo observation platforms*
E. Vourch, G. Caille, ALCATEL ESPACE, Toulouse, France ; M. J. Martin, CASA, Division Espacio, Madrid, Spain ; J.R. Mosig, LEMA-EPFL - EL-ECUBLENS, Lausanne, Switzerland ; A. Martin, P. Oiversen, ESA/ESTEC P. O, Noordwijk, The Netherlands
- F06:02** *Half and quarter wavelength printed antennas on a conical surface*
F. Muller, J. Lenormand, C. Terret, LSR/LAT UPRES-A CNRS 6075, Rennes, France ; T. Girard, LEAT UPRES-A CNRS 6071, Valbonne, France
- F06:03** *Analysis of the rectangular microstrip patch antenna on elliptic-cylindrical substrate*
G. Amendola, G. Di Massa, U. della Calabria, Rende, Italia
- F06:04** *Curvature effects on radiating characteristics of a conformal antenna of arbitrary shape*
X. Begaud, P. Poey, J.P. Daniel, U. de Rennes I, Lab. Antennes et Réseaux, Rennes, France
- F06:05** *Development of a conformal, smart skin antenna utilizing waves in composite media*
D. J. Berg, Boeing Phantom Works, Mesa, USA

- F06:06** *Integration of conformal, smart skin antenna assemblies into aircraft surfaces*
D. A. Wingert, Boeing Phantom Works, Mesa, USA
- F06:08** *An over view of smart skin antennas*
P. PONS, C. Renard, Antenna Dpt, Dassault Electronique, Saint-Cloud, France

Session G13
Friday, July 17, AM
Microwave Components III

- G13:01** *Whispering gallery mode converters*
T. Berceli, G. Reiter, G. Veszely, F. Völgyi, G. Jaro, Technical U. of Budapest, Hungary
- G13:02** *The performance characterisation transferred in to the load plane for a microwave transistor*
F. Gunes, B. A. Cetiner, Yildiz Technical U., Electronics & Communication Eng.Dpt, Istanbul, Turkey
- G13:03** *A neural network approach for the performance data sheets of a microwave transistor*
F. Günes, H. Topi, B. A. Cetiner, Yildiz Technical U., Electronics & Communication Eng.Dpt, Istanbul, Turkey
- G13:04** *On the design of Match-Zehnder silicon waveguides for sensor applications*
B.-H. V. Borges, A. C. César, M. A. Romero, U. de Sao Paulo, Escola de Engenharia de Saos Carlos, Dpt. de Engenharia Elétrica, Sao Carlos, SP, Brazil
- G13:05** *Analysis of coupled ferrite nonradiative dielectric waveguides*
A. C. César, U. de Sao Paulo, Escola de Engenharia de Saos Carlos, Dpt. de Engenharia Elétrica, Sao Carlos, SP, Brazil
- G13:06** *Comparison of numerical computation results with different effective dielectric constants in planar structures*
Y. Yang, J. Lu, School of Microelectronic Engineering, Griffith U., Australia

Session G14
Friday, July 17, AM
Optical Interconnections in Electronic Systems : Design and Realization (II)
Organiser : E. Griesse
Chair : E. Griesse

- G14:01** *Design issues for three-dimensional optoelectronic architectures*
H. Van Marck, M. Brunfaut, J. Dambre, H. Neefs, J. Van Campenhout, U. of Ghent, Dpt. of Electronics and Information Systems, Gent, Belgium
- G14:02** *Waveguide-based optoelectronic interconnects using near IR EM waves*
Ray T. Chen, Microelectronics Research Center, Dpt. of Electrical and Computer Engineering, U. of Texas, Austin
- G14:03** *Vertical-cavity surface-emitting laser diode arrays for parallel optical interconnects Within Multichip Modules*
R. King, R. Michalzik, R. Jäger, F. Eberhard, C. Jung, M. Grabherr, K. J. Ebeling, U. of Ulm, Optoelectronics Dpt., Ulm, Germany
- G14:04** *VCSEL based optical interconnect systems*
R. K. Kostuk, S. Kemme, R. Boye, Electrical and Computer Engineering Dpt. and The Optical Sci. Center, U. of Arizona, USA
- G14:05** *A finite element method with high-order hybrid triangular elements for the analysis of Inhomogeneous, Lossy And Anisotropic Waveguides*
V. Schulz, G. Mrozynski, M. Thienenkamp, U.-GH Paderborn, Theoretische Elektrotechnik, Paderborn, Germany
- G14:06** *Analysis of gradient index waveguide lenses by means of the finite element method*
A. Himmler, U.-GH Paderborn, Theoretische Elektrotechnik/ C-LAB, Paderborn, Germany

Session H09
Friday, July 17, AM
Modelling Design of Millimeter Wave Antennas
 Organisers : J. R. Mosig, A. Skrivervik
 Chairs : J. R. Mosig, J. Citerne

- H09:01** *Modeling of a novel planar integrated (SUB)MMW receiver by using an extended FDTD method*
 P. de Maagt, J. Vazquez, ESA/ESTEC Noordwijk, The Netherlands ; C. Parini, P. Clarricoats, Queen Mary and Westfield College, U. of London, London, UK
- H09:02** *Simulation of Integrated open structure receivers using improved spectral domain and raytracing / aperture field integration methods*
 T. Vaupel, V. Hansen, U. Wuppertal, Lehrstuhl fuer Theoretische Elektrotechnik, Wuppertal, Germany
- H09:03** *Influence of the source model on the analysis of slot antennas in the spectral domain*
 C. Letrou, T. L. Visan, INT/EPH, Evry, France ; T. L. Visan, U. «Polithnica» of Bucharest, Bucharest, Romania
- H09:04** *Cavity effects on printed antenna performance*
 R.C. Hall, D. Zheng, Ansoft Corporation, Boulder Microwave Division, Boulder, USA

Session H10
Friday, July 17, AM
Dipole And Wire Antennas

- H10:01** *A new broad band resistive wire antenna for ultra-wide-band applications*
 Y. IMBS, Y. Chevalier, B. Beillard, J. Andrieu, M. Jouvett, B. Jecko, I.R.C.O.M., Brive, France ; M. Le Goff, E. Legros, CELAR (DGA), Bruz, France
- H10:02** *Excitation and efficiency of electrically small plasma antennas*
 J. R. James, I. Morrow, Dpt. of Aerospace, The Royal Military College of Sci., Cranfield U., Swindon, UK
- H10:03** *Comparative methods of solution for input impedance characteristics of truncated conical dipole by moment method and Hallen integral equation*
 C. Das Gupta, Senior Member IEEE, Dpt of Electrical Engg, IIT, Kanpur ; P. C. Das Professor, Dpt of Mathematics, IIT, Kanpur ; A. K. Gogoi, Dpt of Electronics Engineering, Gauhati, Assam, India
- H10:04** *Theory of biconical dipole antennas*
 L.J Voinova, S.I Eminov, Novgorod State U. by Y.Mudry, Dpt of the Theoretical and Special Physics, St Petersburg, Russia
- H10:05** *Band properties of dipole antennas near to ground*
 V.V Artemiev, S.I Eminov, Novgorod State U. by Y.Mudry, Dpt of the Theoretical and Special Physics, St Petersburg, Russia
- H10:06** *The synthesis of the linear continuous antennas with patterns without side lobes*
 N.N.Gorobets, O. N. Nosenko, Dpt of Applied Electrodynamics Kharkov State U., Kharkov, Ukraine
- H10:07** *Experimental proof that dc field sensor operation conforms with antenna theory*
 B. Z. Kaplan, U. Suissa, Dpt. of Electrical and Computer Engineering, Ben-Gurion U. of the Negev, Beer-Sheva, Israël
- H10:08** *Mathematical model of strip dipole antenna on stratified substructure*
 Selin Victor I, Obninsk, Russia
- H10:09** *Input impedance of loaded wire antenna in the presence of a lossy half-space*
 D. Poljak, V. Roje, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, Dpt. of Electronics, U. of Split, Split, Croatia

J. I. P. R. 4 - Session I09
Friday, July 17, AM 08:40-12:20
Joint European Community-Commonwealth of Independent States
EC-CIS Polarimetry Projects
Organisers : L. Ligthart and V.N. Tatarinov
Chairs : L. Ligthart and V.N. Tatarinov

- I09:01** *Joint Russian-Dutch polarimetric radar projects (1)*
 (Overview) *a) Polarization properties of distributed radar targets*
 V.N. Tatarinov, Tomsk State University of Control Systems and Radioelectronics, Laboratory RES, Tomsk, Russia ;
 L. Ligthart, Delft University of Technology, International Research Center for Telecommunications Transmission and
 Radar, The Netherlands.
- b) Frequency averaging of polarization speckle - effect for stable description of scattered
 signals*
 S.V. Tatarinov, Tomsk State University of Control Systems and Radioelectronics, Laboratory RES, Tomsk, Russia ;
 L. Ligthart, Delft University of Technology, International Research Center for Telecommunications Transmission and
 Radar, The Netherlands.
- I09:02** *Polarization properties of complex radar objects having random distribution of the scattering
 centers*
 L. Ligthart, Delft University of Technology, International Research Center for Telecommunications Transmission and
 Radar, The Netherlands. ; V.N. Tatarinov, S. V. Tatarinov, Tomsk State University of Control Systems and
 Radioelectronics, Laboratory RES, Tomsk, Russia.
- I09:03** *Doppler-polarimetric radar measurements of precipitation*
 C. M. H. Unal, L. Ligthart, Delft University of Technology, International Research Center for Telecommunications -
 Transmission and Radar, The Netherlands.
- I09:04** *Joint Russian-Dutch polarimetric radar projects (2)*
 (Overview) *a) Theoretical modeling of microwave scattering*
*b) Polarimetric method for measuring and visualizing permittivity characteristics of earth
 surface*
 A. I. Kozlov, A. I. Logvin, The Moscow State Technical University of Civil Aviation, Moscow, Russia ; L. Ligthart,
 Delft University of Technology, International Research Center for Telecommunications Transmission and Radar,
 The Netherlands.
- I09:05** *IRCTR activities in modeling of electromagnetic wave transmission through air-ground interface*
 A.G. Yarovoy, R. V. De Jongh, L. Ligthart, Delft University of Technology, International Research Center for
 Telecommunications - Transmission and Radar, The Netherlands.
- I09:06** *Joint Russian-French polarimetric radar projects*
 (Overview) *a) One channel surveillance multiparametric polarization radar for experimental
 investigations*
*b) Rejection comb filtering as method of polarization invariants measurements for
 surveillance polarization radar*
 S. V. Tatarinov, V.N. Tatarinov, Tomsk State University of Control Systems and Radioelectronics, Laboratory RES,
 Tomsk, Russia. ; J. Saillard, E. Pottier, Lab SEI-EP CNRS 63, IRESTE, Nantes, France.
- I09:07** *Scattering matrix radar parameters: the one-channel polarization radar theory*
 E.V. Masalov, O. S. Korenkov, Tomsk State University of Control Systems and Radioelectronics, Tomsk,
 Russia.

Session J10
Friday, July 17, AM
Classification of Synthetic Aperture Radar Images
 Organiser : S. Quegan
 Chairs : S. Quegan, C. J. Oliver

- J10:01** *Information from SAR texture*
 C. J. Oliver, DERA, Malvern, UK
- J10:02** *A rigorous analysis of the information content of ERS-SAR images*
 S. Hawlitschka, M. Hamacher, W. Kühbauch, University of Bonn, Germany
- J10:03** *Supervised vs. unsupervised interpretation of polarimetric SAR imagery using model regularisation*
 P. C. Smits, S. Dellepiane, University of Genoa, Italy
- J10:04** *Supervised classification of targets in alpine terrain based on multiparameter SAR data*
 D. Floricioiu, H. Rott, Inst. of Meteorology and Geophysics, U. of Innsbruck, Austria
- J10:05** *Fuzzy C-means segmentation of land-covers in interferometric SAR images*
 P. B.G. Dammert, S. Köhlmann, J. Askne, G. Smith, Dept of Radio and Space Science, Chalmers University of Technology, Gothenburg
- J10:06** *Unsupervised classification scheme and topography derivation of Polsar data based on the « $H/A/a$ » polarimetric decomposition theorem*
 E. Pottier, Laboratoire SEI/OS - EP CNRS 63 IRESTE, Nantes, France
- J10:07** *Investigating the electromagnetic rationale of radar classification capability*
 P. Ferrazzoli, L. Guerriero, C. Pastorelli, G. Schiavon, Università Tor Vergata, DISP, Roma, Italy
- J10:08** *Knowledge-based classification of agricultural crops using SIR-C polarimetric data*
 M. Davidson, N. Floury, T. Le Toan, Centre d'Etudes de la Biosphere, Toulouse, France; R. Steingießer, W. Kühbauch, Institut. für Pflanzenbau, Bonn, Germany

Session K08
Friday, July 17, AM
Parabolic Equation Techniques for Wave Propagation
 Organiser : M. F. Levy
 Chair : M. F. Levy, J. Kuttler

- K08:01** *Parabolic approximation of acoustic fields in an ocean over a poroelastic seabed*
 J. Buchanan, Dpt of Mathematics, United States Naval Academy, Annapolis, Maryland, USA ; R.P. Gilbert, Dpt of Mathematical Sci., U. of Delaware, Newark, Delaware, USA
- K08:02** *A three-dimensional, two-way IFD PE model for the forward and backward underwater sound propagation*
 D. Zhu, L. Bjorno, Dpt. of Industrial Acoustics, Technical U. of Denmark, Lyngby, Denmark
- K08:03** *PE algorithm for holographic object localization*
 A.V. Popov, V. S. Arefiev, V. A. Vinogradov, Inst. of Terrestrial Magnetism, Ionosphere and Radiowave Propagation, Moscow region, Russia
- K08:04** *The parabolic equation/Fourier split-step method applied to two canonical problems*
 J. R. Kuttler, G. D. Dockery, The Johns Hopkins U., Applied Physics Laboratory, Laurel, MD, USA
- K08:05** *Modeling refractive effects on infrared (IR) transmission paths using the parabolic equation*
 A. Barrios, Propagation Division Spawarsyscen San Diego, San Diego, CA, USA
- K08:06** *Validation of models for rough surface ducting cases*
 H. V. Hitney, Space and Naval Warfare Systems Center, San Diego, CA, USA
- K08:07** *Tropospheric refractivity estimation using radar clutter from the sea surface*
 J. Krolik, S. Vasudevan, J. Tabrikian, Dpt of Electrical and Computer Engineering Duke U., Durham, NC, USA ;
 L. T. Rogers, C. Hattan, Propagation division Space and Naval Warfare Systems Center, San Diego, CA, USA

- K08:08** *Remote sensing of evaporation and surface ducts*
J. Claverie, P. Delaunay, Centre de Recherches des Ecoles de Coëtquidan, Guer, France
- K08:09** *Marching methods for electromagnetic scattering calculations*
A.A. Zaporozhets, M. F. Levy, Radio Communications Research Unit, Rutherford Appleton Laboratory, Didcot, OX, UK ; A. G. Voronovich, NOAA/ER/ETL, R/E/ET1, Boulder, CO, USA
- K08:10** *Applications of a parabolic equation scattering technique*
M.F. Levy, A. A. Zaporozhets, Radio Communications Research Unit, Rutherford Appleton Laboratory, Oxon, UK ; M. D. Collins, Naval Research Laboratory, Washington, DC, USA

Session L10
Friday, July 17, AM
CEM

- L10:01** *Correlation of measurements on different sites using the GPOF method*
B. Fourestié, Z. Altman, J. Wiart, A. Azoulay, C.N.E.T. D.M.R./R.M.C, Issy-les-Moulineaux, France
- L10:02** *Electromagnetic compatibility of radioelectronic devices with mechanical system*
G.A Milonov, V.A Gandurin, Moscow Scientific Research Inst. of Instrument Engineering, Moscow, Russia
- L10:03** *Modified six port TEM cell for generating standard electromagnetic fields*
J.M.Ko, J. H. Yun, S. C. Kong, J. K. Kim, Dpt of Electronic Engineering, Chung-Ang U., Seoul, Republic of Korea
- L10:04** *Anti-shielding effect of a cylindrical grid of metal wires*
V. Yurchneko, , Inst. of Radiophysics and Electronics National Academy of Sci. Kharkov ; A. Altintas, V. Yurchneko, Biktent Univ., Dpt. of Electrical and Electronics Engineering, Ankara, Turkey
- L10:05** *Thin wall shielding: a comparison of approximate and exact solutions*
E. Baum, FG Grundlagen der Elektrotechnik, FB Elektrotechnik, Fachhochschule Fulda, Fulda ; G. Mrozynski, Institute of Electromagnetic Theory, U. of Paderborn, Germany.

Session L12
Friday, July 17, AM
Sensors : Radar and Radiometer I

- L12:01** *Naval special warfare PMMW data collection results*
B. Blume, Nichols Research Corporation, Panama City, FL ; J. Wood, F. Downs, Naval Coastal Systems Station, Panama City, FL, USA
- L12:02** *Passive millimeter wave imaging device for naval special warfare*
F. Downs, Coastal Systems Station Dahlgren Division, Naval Surface Warfare Center, Panama City, FL, USA
- L12:03** *3D Migration/Array processing using GPR data*
M. L. Moran, USA Cold Regions Research and Engineering Lab, Hanover, NH, USA
- L12:04** *Periodically grooved conical dielectric feeder for millimeter wave system applications*
C. Das Gupta, Dpt of Electrical Engg, Indian Inst. of Technology, Kanpur ; A. Kumar, Dpt of Electronics Engg, Assam Engineering College, Gauhati, Assam, India
- L12:05** *Point-matching technique for computation of magnetic field perturbation by finite length crack in high sensitivity ACFM technique*
D. Mirshekar-Syahkal, R. F. Mostafavi, Dpt. of Electronic Systems Engineering, U. of Essex, Essex, UK
- L12:06** *Recent advances in high sensitivity ac field measurement for electromagnetic non-destructive evaluation*
D. Mirshekar-Syahkal, Dpt. of Electronic Systems Engineering, U. of Essex, Essex, UK
- L12:07** *Accordinative study between the vertical electrical sounding and TEM methods for exploring groundwater along Cairo-Alexandria road (Egypt)*
S. Sh. Osman, A. Gh. Hassaneen, E. A. Al-Sayed, National Research Institute of Astronomy and Geophysics Laboratory for geoelectric and Geothermics, Helwan, Cairo, Egypt

L12:08 *The exploration of the groundwater aquifer by using TEM & VES methods in the southern part of the Nile Delta*
S. Sh. Osman, A. Gh. Hassaneen, E. A. Al-Sayed, National Research Institute of Astronomy and Geophysics
Laboratory for geoelectric and Geothermics, Helwan, Cairo, Egypt

L12:09 *A Fast multilevel algorithm for radar imaging*
A. Boag, S. Shamma, Israel Aircraft Industries, Dpt. 4483, Ben-Gurion Airport, Israel

Session M08
Friday, July 17, AM
Dielectric Measurements on Low Loss Crystals
Workshop on Complex Media and Measurement Techniques
Organiser : J. Baker-Jarvis
Chairs : J. Baker-Jarvis, J. Krupka

- M08:01** *Dielectric characterization of low-loss materials : a comparison of techniques*
J. Baker-Jarvis, M. D. Janezic, National Inst. of Standards and Technology, Electromagnetic Fields Division, Boulder, CO, USA
- M08:02** *Dielectric properties of extremely low loss single crystal dielectrics at cryogenic temperatures*
J. Krupka, Inst. Mikroelektroniki i Optoelektroniki PW, Warszawa, Poland ; K. Derzakowski, Inst. Radioelektroniki PW, Warszawa ; M. Tobar, Dpt of Physics, U. of Western Australia, Nedlands, WA, Australia ; R. G. Geyer, National Institute of Standards and Technology, Electromagnetic Fields Division, Boulder, CO, USA
- M08:03** *Cryogenic dielectric resonators and their applications*
N. Klein, I. S. Ghosh, S. Schornstein, C. Zuccaro, Forschungszentrum Jülich, Institut für Festkörperforschung, Jülich, Germany ; L. Hao, J. Gallop, National Physical Laboratory, Teddington, UK
- M08:04** *High Q liquid helium cooled dielectric resonators and measurement applications*
J. C. Gallop, L. Hao, C. D. Langham, National Physical Laboratory, Teddington, UK ; N. Klein, I. S. Ghosh, Forschungszentrum Jülich, Inst. für Festkörperforschung, Jülich, Germany
- M08:05** *Measurements of doped and composite low loss single crystal dielectric resonators for secondary frequency standards*
M.E. Tobar, J. G. Hartnett, A. G. Mann, E. N. Ivanov, Dpt. of Physics, U. of Western Australia, Nedlands, WA, Australia ; J. Krupka, Inst. Mikroelektroniki i Optoelektroniki PW, Warszawa, Poland ; R. G. Geyer, National Inst. of Standards and Technology, Electromagnetic Fields Division, Boulder, CO, USA
- M08:06** *Overview of theoretical background for dielectric measurements on low-loss crystals*
J. Baker-Jarvis, National Inst. of Standards and Technology, Electromagnetic Fields Division, Boulder, CO, USA

Session A11
Friday, July 17, PM
Diffraction and Electromagnetic Waves

- A11:01** *Diffraction of a flat H-polarized wave on a slot under magnetic-dielectric cover*
V.L. Danilchuk, Novgorod State U., Dpt of the Theoretical and Special Physics, Novgorod, Russia
- A11:02** *Diffraction of the plane wave by a soft and hard strip*
C. Yildiz, Erciyes University, Engineering Faculty, Electronical Engineering Dpt, Kayseri, Turkey
- A11:03** *Electromagnetic returns from dielectric media with embedded wires*
R. D. Bardo, R. Chen, E. C. Fischer, P. Sarman, Naval Surface Warfare Center, Carderock Division, West Bethesda, MD, USA ; H. U. Berall, Also at Dpt of Physics, Catholic U., Washington, DC, USA
- A11:04** *Diffraction by screens with two and three dimensional hollows*
V. V. Lozhechko, Yu. V. Shestopalov, Dpt. of Computational Mathematics and Cybernetics, Moscow State U., Moscow, Russia
- A11:05** *A General theory of diffraction by perfectly conducting capacitive grids*
L. C. Botten, School of Mathematical Sci. U. of Technology, Sydney, Australia, R. C. McPhedran, N. A. Nicorovici, School of Physics, U. of Sydney, Australia

- A11:06** *High frequency diffraction by an open ended parallel plate waveguide cavity with impedance walls*
A. Buyukaksoy, Faculty of Sci. Gebze Inst. of Technology, Kocaeli, Turkey ; F. Günes, B. A. Cetiner, Yildiz Technical U., Electronics & Communication Eng. Dpt, Istanbul, Turkey
- A11:07** *The model synthesis of quasi-optical systems with selective gratings-mirrors*
Yu.K. Sirenko, L. G. Velichko, Inst. of Radiophysics and Electronics, National Academy of Sci. of Ukraine, Kharkov, Ukraine
- A11:08** *A model problem for side-lobe blockage of radiofrequency radiation*
E. Vinogradova, P. D. Smith, Dpt. of Mathematics, U. of Dundee, Scotland, UK

Session A12
Friday, July 17, PM
Electromagnetic Formulation

- A12:01** *General multidimensional integral equation for design of microwave planar structures*
M. V. Davidovich, Saratov State Technical U., ED& ID Dpt, Saratov, Russia
- A12:02** *Fractionalization of kernels for electromagnetic intermediate-zone fields in cylindrical and spherical geometries*
N. Engheta, Moore School of Electrical Engineering, U. of Pennsylvania, Philadelphia, Pennsylvania, USA
- A12:03** *Fractional paradigm in electromagnetism*
N. Engheta, Moore School of Electrical Engineering, U. of Pennsylvania, Philadelphia, Pennsylvania, USA
- A12:04** *An alternate characteristic equation for a cylindrical dielectric waveguide*
M. J. Lahart, Army Research Laboratory, Adelphi, MD, USA
- A12:05** *Comparison of eddy currents computation by H formulation and by E formulation*
M. Djennah, A. Brahim, U.E.R Systèmes Electromagnetiques, Ecole Militaire Polytechnique, Alger, Algeria
- A12:06** *A reflection of electromagnetic wave from a smoothing transitional layer*
A.V. Samokhin, Moscow State Technical U. of Civil Aviation, Moscow, Russia

Session B09
Friday, July 17, PM
Scattering II

- B09:01** *Angular variation of diffuse scatter from discrete inhomogeneities in terrestrial and icy surfaces : results from 3-D FDTD simulations*
J.E. Baron, Center for Radar Astronomy, Stanford U., Stanford, CA, USA
- B09:02** *Improved modelling for scattering and emissivity of clouds*
E. Aydemir, Turkish Air Force Academy, Istanbul, Turkey ; S. Seker, Bogazici U. Istanbul, Turkey
- B09:03** *Scattering models for the Rice crop growth monitoring*
Y. Shao, J. Li, Inst. of Remote Sensing Applications Chinese Academy of Sci., Beijing, China
- B09:05** *3-D scene modeling and remote sensing applications*
W. Qin, Biospheric Sciences Branch NASA Goddard Space Flight Center, Greenbelt, MD, USA
- B09:06** *Angle-resolved ellipsometry of light scattering for separating surface and bulk effects*
H. Giovannini, C. Amra, C. Deuné, Laboratoire d'Optique des Surfaces et des Couches Minces, Ecole Nationale Supérieure de Physique de Marseille, Marseille, France
- B09:07** *Exact model for scattering from periodic rough surfaces*
D. Kasilingam, Dpt of Electrical & Computer Engineering U. of Massachusetts, North Dartmouth, MA, USA
- B09:08** *Scattering from natural rough surfaces described by the FBM fractal model*
G. Franceschetti, A. Iodice, D. Riccio, U. di Napoli Federico II, Dpt di Ingegneria Elettronica, Napoli, Italia ; G. Franceschetti, Consiglio Nazionale delle Ricerche IRECE, Napoli, Italy ; M. Migliaccio, Ist. U. Navale, Ist. Teoria e Tecnica delle Onde Electromagnetiche, Napoli, Italy

- B09:09** *Radiative transfer in the atmosphere-ocean system : the finite element method*
L. Roberti, B. Bulgarelli, Dip. Di Elettronica, Politecnico di Torino, Torino, Italy ; V. B. Kisselev, St Petersburg Inst. for Informatic and Automation of the Academy of Sci. of Russia, St Petersburg, Russia
- B09:10** *Non destructive testing of heterogeneous structures with a step frequency radar*
V. Cattin, J.-J. Chaillout, CEA Grenoble LETI Laboratoire d'Electronique de Technologie et d'Instrumentation Dpt Systèmes - Service Capteurs et Systèmes pour la Magnétométrie et l'Electromagnétisme, Grenoble, France
- B09:11** *Numerical analysis of radar scattering from turbulent flows and rough bodies of rotation*
V.G. Spitsyn, Siberian Physical and Technical Inst. Tomsk State U., Tomsk, Russia
- B09:12** *Application of a wave interference of two different frequencies for detection of the cylindrical object buried in dielectric half-space*
A. A. Vertiy, S. P. Gavrilov, Tubitak-MRC, Turkish-Ukrainian Joint Research Laboratory, Gebze-Kocaeli, Turkey ; A. A. Vertiy, S. P. Gavrilov, IRE, National Academy of Sci. of Ukraine, Kharkov, Ukraine ; A. A. Vertiy, S. P. Gavrilov, State Research Center « Fonon », Kiev, Ukraine

Session C09
Friday, July 17, PM
The Methods of Lines for Computational Electromagnetics
Organisers : R. Pregla, W. Pasher
Chairs : R. Pregla, W. Pasher

- C09:01** *New developments in the method of lines*
(Overview) R. Pregla, Allgemeine und Theoretische Elektrotechnik, FernU., Hagen, Germany
- C09:02** *Electromagnetic, modelling of microwave structures and filter design with the method of lines*
P. Valade, D. Cros, I.R.C.O.M. - Faculté des Sci., Limoges, France
- C09:03** *The moL - a competitive analysis tool for filters?*
L. Vietzorreck, Lehrstuhl für Hochfrequenztechnik Technische Universität München, München, Germany ; R. Pregla, Allgemeine und Theoretische Elektrotechnik, FernU., Hagen, Germany
- C09:04** *Scattering of a finite elliptic cylinder by a combination of moL and generalized multipole technique*
W. Pascher, Allgemeine und Theoretische Elektrotechnik FernU., Hagen, Germany, P. Leuchtmann, Allgemeine und Theoretische Elektrotechnik FernU., Hagen, Germany
- C09:05** *Shielding of two broadside coupled single microstrip lines by a non-ideal metallic layer*
Hans-Georg Bergandt, Allgemeine und Theoretische Elektrotechnik, FernU., Hagen, Germany
- C09:06** *Analysis of a shielding structure using the method of lines coupled with the mode-matching method*
H.-H. Chen, S.-J. Chung, Dpt. of Communication Eng., Nat'l Chiao Tung U., Hsinchu, Taiwan, ROC
- C09:07** *Optical pulse propagation in nonlinear quadratic materials*
C. Sibilia, M. Di Vito, R. Cerioni, M. Bertolotti, Dpt di Energetica, U. di Roma "La Sapienza", Roma, Italy
- C09:08** *Modeling high-speed optoelectronic and microwave radiative components using the method of lines*
P. Berini, EITI - Ecole d'Ingenierie et de Technologie de l'information, U. d'Ottawa, Ottawa, Ontario, Canada ; K. Wu, Dpt de Génie Electrique et de Génie Informatique, Ecole Polytechnique de Montréal, Montréal, Canada
- C09:09** *Efficient analysis of planar MMICs printed on anisotropic substrates using the method of lines*
Y. Chen, Dpt of Electric Engineering, Hong Kong Polytechnic U., Hong Kong ; B. Beker, Dpt of Electrical and Computer Engineering U. of South Carolina, Columbia, USA
- C09:10** *Rigorous analysis of non-homogeneous gyrotropic waveguides by the method of lines*
Siegbert Martin, Bosch Telecom GmbH, Public Networks, Backnang, Germany, R. Pregla, Allgemeine und Theoretische Elektrotechnik, FernU., Hagen, Germany
- C09:11** *New capabilities of method of lines to characterize planar antennas with finite substrate*
M. Drissi, P. Hervé, J. Citerne, INSA/LCST, UPRES-A 6075, Rennes, France

Session D09
Friday, July 17, PM
Advanced Topics in FDTD
 Organiser : B. Jecko
 Chairs : B. Jecko, F. Jecko

- D09:01 Matrix formulation for analysis and design of synthetic linear and non linear materials*
 R.W. Ziolkowski, F. Auzanneau
- D09:03 The use of the FDTD method to simulate a smart antenna in an indoor environment*
 J. Litva
- D09:04 Making use of FDTD-PML in electromagnetic compatibility*
 J.-P. Berenger, Centre d'Analyse de Defense, Arcueil, France
- D09:05 Implementation of lumped circuits in FDTD codes*
 A. Reinex, B. Jecko, IRCOM-UMR CNRS 6615, Equipe Electromagnetisme, Faculte des Sci., Limoges, France ;
 L. Auzereau, J. P. Seaux, CEA CESTA, Le Barp, France
- D09:06 Introduction of a new model of partially magnetized ferrite material in a FDTD code.*
Application to non saturated ferrite devices
 Th. Monediere, F. Jecko, K. Berthou-Pichavant, Ph. Gelin
- D09:07 FDTD simulation of microwave circuits with nonlinear and active elements*
 B. Houshmand, M. Chen, K.P. Ma, T. Itoh, U. of California at Los Angeles, Los Angeles, USA

Session E12
Friday, July 17, PM
Signal Processing

- E12:01 Target enhancement for marine radar video signals by spatial frequency filters*
 K. Arai, Y. Watanabe, Dpt. of Electrical & Electronics Engineering, Nippon Inst. of Technology, Saitama-ken, Japan
- E12:02 Extracting the frequency dependence of close scatterers*
 G. Poulalion, S. Morvan, CEA/ CESTA, DEV/SFUR/GMMS, Le Barp, France
- E12:03 A signal processing analogue of phase screen scattering*
 E. Jakeman, Dpt of Electrical and Electronic Engineering, U. of Nottingham, Nottingham, UK ; K. D. Ridley,
 Defence Evaluation and Research Agency, Worcestershire, UK
- E12:04 Corrected Monopulse Methods for Adaptive Arrays*
 U. Nickel, FGAN-FFM, Wachtberg, Germany
- E12:05 Fast Modeling of Induction Responses Using Fourier Analysis of Geometric Factor*
 L. Tabarovsky, Z. Jericevic, M. Rabinovich, Western Atlas Logging Services, Western Atlas International,
 Houston, TX, USA
- E12:06 An Efficient Approach for the Computation of the Modal Spectrum of Ridged Rectangular Waveguides*
 V. E. Boria Esbert, S. Cogollos, A. Vidal, H. Esteban, Dpt de Comunicaciones U. Polit cnica de Valencia, Valencia,
 Spain
- E12:07 Ultrasonic and infrared based sensor fusion and navigation*
 L. Yenilmez, H. Temeltas, Faculty of Electronics Air force Academy, Istanbul, Turkey
- E12:08 The Numerical Method using operator weights for solution of operator equations arising in electromagnetic problems*
 K.-D. Choi, J.-Ki Kim, Dpt of Electronic Engineering, Chung-Ang U., Seoul, Republic of Korea
- E12:09 Robust pipe recognition in ground penetrating radar data*
 P. Gamba, Dpt di Elettronica, U. di Pavia, Pavia, Italy
- E12:10 Restoration of the signal form with using of the invariance property*
 O. V. Stoukatch, I.V. Stoukatchev, Tomsk State U. of Control Systems and Radioelectronics, Tomsk, Russia

- E12:11** *The Analytical Signal for the Radio Pulse with Rectangular Envelope*
Ilya D. Zolotarev, Omsk State Engineering U., Omsk, Russia
- E12:12** *The image's segmentation on a basis of a fractals dimension and logic linkage*
Y. V. Martishevsky, Tomsk State Academy of Control System and Radioelektronics (TASCR), Tomsk, Russia
- E12:13** *Atomic functions and its applications to tasks of signal processing and boundary value problems*
V. Kravchenko, Inst. of Radio Engineering and Electronics of the Russian Academy of Sci., Moscow, Russia ;
V. A. Rvachev, Zhukovskii Inst. of Aviation, Kharkov, Ukraine

Session F09
Friday, July 17, PM
Antennas for Mobile Communication Systems
Organiser : T. B. Vu
Chairs : T. B. Vu, S. Choi

- F09:01** *Variable radiation pattern of helix antennas*
H. Kawakami, Y. Iitsuka, S. Kogiso, G. Sato, Antenna Giken Co, Omiya, Japan
- F09:02** *Adaptive antenna design for indoor radio PCS systems*
J.-G. Wang, A. S. Mohan, Faculty of Engineering, U. of Technology, Sydney, Australia
- F09:03** *Combined adaptative space-time MMSE receivers for interference suppression in DS/CDMA*
V. D. Pham, T. B. Vu, School of Electrical Engineering, The U. of New South Wales, Sydney, Australia
- F09:04** *Antenna array for signal estimation in DS-CDMA mobile systems*
B. Xu, T. B. Vu, School of Electrical Engineering, The U. of New South Wales, Sydney, Australia
- F09:05** *A New-space-time equalizer for mobile communications*
H. Chen, T. B. Vu, Dpt. of Communications, School of Electrical Engineering, U. of New South Wales, Sydney, Australia
- F09:06** *Antenna size reduction for mobile communication systems*
B. Desplanches, A. Sharaiha, C. Terret, LSR/LAT UPRES-A 6075 U. de Rennes 1, Rennes., France ; J. F. Diouris, LSEI EP CNRS 63, Nantes, France
- F09:07** *A Novel adaptive beamforming algorithm based on power series method for a smart antenna system in CDMA mobile communications*
S. Choi, Dpt. of Electronic Communication, Hanyang U., Seoul, Korea
- F09:08** *The effects of mutual coupling and diffraction for adaptive array performance*
K. Hirasawa, Inst. of Information Sci. and Electronics, U. of Tsukuba, Ibaraki, Japan
- F09:09** *A circularly polarized S-type printed dipole antenna*
H. Morishita, Dpt of Electrical Engineering, National Defense Academy, Kanagawa, Japan

Session G15
Friday, July 17, PM
Microwave Components IV

- G15:01** *Microwave properties of ferroelectric (Ba,Sr)TiO₃ varactors at high microwave power and under video voltage pulses*
A.B.Kozyrev, A. V. Ivanov, O. I. Soldatnikov, St. Petersburg Electrotechnical U., St. Petersburg, Russia ;
G. A. Koepf, C. H. Mueller, T. V. Rivkin, Superconducting Core Technologies Inc, Golden, USA
- G15:02** *Optimization of band properties of a short impedance vibrator on the basis of the complex analysis*
V.L. Danilchuk, Novgorod State U., Dpt of the Theoretical and Special Physics, Novgorod Russia
- G15:03** *Fourier transformation of electromagnetic fields in to opened waveguided structures in classes of distributions of slow growth*
N.B.Pleshchinskii, D. N. Tumkov, Kazan State U., Kazan, Russia

- G15:04** *Peculiarities of light propagation in four layer step and gradient waveguides*
D.I. Sementsov, A. M. Shuty, D. G. Sannikov, A. V. Kazakevich, Ulyanovsk State U., Ulyanovsk, Russia
- G15:05** *High Q microwave and MM-Wave resonators with rarefied spectrum of eigen oscillations*
V.A. Karpovitch, V. N. Rodionova, Inst. for Nuclear Problems of Belorussian State U., Republic of Belarus, Minsk

Session H11
Friday, July 17, PM
Antenna and Signal Processing
Organiser : S. Skulkin
Chairs : S. Skulkin, J.F. Diouris

- H11:01** *Binary object identification and reconstruction by using neural network processing of inverse scattering data*
M. N. Rychagov, Moscow Inst. of Electronic Engineering, Moscow, Russia ; B. Duchene, Laboratoire des Signaux et Systèmes, CNRS-SUPELEC, Gif-sur-Yvette, France
- H11:02** *Robust beamforming in adaptive antenna arrays*
A. B. Gershman, Signal Theory Group, Ruhr U., Bochum, Germany
- H11:03** *Properties of polarisation components of transient near-field radiated from a parabolic reflector antenna*
S. P. Skulkin, S. M. Kashaev, Radiophysical Research Institute (NIRFI), Nizhny Novgorod, Russia
- H11:04** *Basics of low-cost time-domain antenna measurements and experience of antenna measurements without anechoic chambers*
D. M. Ponomarev, V. Proshin, K. Nikashov, Scientific-Research company MERA, Novgorod, Russia
- H11:05** *Antenna charge model and it's application to wire antenna synthesis*
D. Ponomarev, I. Kovalev, K. Nikashov, Sci.-Research company MERA, Novgorod, Russia
- H11:06** *Bi-polar near-field antenna measurements with synthesized short radio pulse*
A. V. Kalinin, Radiophysical Research Inst. (NIRFI), Nizhny Novgorod, Russia
- H11:07** *Inclusion of constant electromagnetic power into oscillating circuit with unsettled dielectric parameters in condensor*
A.L.Gutman, Voronezh State Forestry Engineering Academy , Dpt of Physics, Voronezh, Russia
- H11:08** *Electromagnetic wave scattering at High Harmonics by antennas with a nonlinear load*
A. A. Gorbachev, T. M. Zaboronkova, Radiophysical Research Inst., (NIRFI), Nizhny Novgorod, Russia
- H11:09** *Statistical Aspects of the Theory of Antenna Measurements*
Y. S. Shifrin, V. A. Usin*, Kharkov Techn. U. of Radioelectronics, Kharkov, Ukraine

J. I. P. R. 4 - Session I10
Friday, July 16, PM 13:40-17:20
Polarization Effects Modeling by Scattering Radiowaves and Surfaces
Organiser : A.I. Kozlov
Chairs : A.I. Kozlov and A.I. Logvin

- I10:01** *Modeling of reflected radar signals in dependence of surface influence*
(Overview) A. I. Kozlov, A. I. Logvin, The Moscow State Technical University of Civil Aviation, Moscow, Russia
L. Ligthart, Delft University of Technology, International Research Center for Telecommunications Transmission and Radar, The Netherlands.
- I10:02** *An investigation of the returned polarization characteristics of terrain*
A. E. Filippov, V. V. Tsutskov, A. I. Zakharov, The Moscow State Technical University of Civil Aviation, Moscow, Russia
- I10:03** *Classification of radar targets according to the scattering matrix invariants*
V. V. Tsutskov, A. E. Filippov, A. I. Zakharov, The Moscow State Technical University of Civil Aviation, Moscow, Russia

- 110:04** *The increase of radar contrast by polarization processing methods*
V. V. Tsutskov, A. E. Filippov, A. I. Zakharov, The Moscow State Technical University of Civil Aviation, Moscow, Russia
- 110:05** *Electrodynamics modeling of angular noise in dependence of radiowave polarization*
(Overview) A. I. Logvin, A. I. Kozlov, The Moscow State Technical University of Civil Aviation, Moscow, Russia L. Ligthart, Delft University of Technology, International Research Center for Telecommunications Transmission and Radar, The Netherlands.
- 110:06** *About opportunities of the radar targets detection by polarizable anisotropy index*
Y.B Pavlovsky, A.I Kozlov, A.I Logvin, The Moscow State Technical University of Civil Aviation, Moscow, Russia
- 110:07** *The radar targets on a background of forestry tracts detection characteristics*
A.V Prochorov, A.I Kozlov, A.I Logvin, The Moscow State Technical University of Civil Aviation, Moscow, Russia
- 110:08** *Statistical properties of radar target scattering matrix elements (distribution module and phase)*
V. N. Moiseyenko, D. R. Fedoseyev, The Moscow State Technical University of Civil Aviation, Moscow, Russia

Session J11
Friday, July 17, PM
VHF Band SAR
Organiser : L. Ulander
Chairs : L. Ulander, M. Imhoff

- J11:01** *Improved spatial sampling using a frequency hopping ground penetrating radar*
E. S. Eide, Inst. for teleteknikk Norwegian U. of Sci. and Technology, Trondheim, Norway
- J11:02** *CARABAS observations of pine and spruce forests*
G. Smith, Remote Sensing Group Dpt of Radio and Space Sci. Chalmers U. of Technology, Göteborg, Sweden
- J11:03** *Estimation of forest stem volume using CARABAS-II VHF SAR data*
J.E.S. Fransson, Swedish U. of Agricultural Sci. Dpt of Forest Resource Management and Geomatics, Umeå, Sweden ; P. O. Fröling, A. Gustavsson, L. M. H. Ulander, Swedish Defence Research Establishment, CARABAS Laboratory, Linköping, Sweden ; F. Walter, Swedish U. of Agricultural Sci., Uppsala, Sweden
- J11:04** *Boreal forest detection by CARABAS*
A.T. Manninen, VTT Automation, Remote Sensing, VTT, Finland
- J11:05** *VHF-band SAR image simulations of objects above ground using FDTD*
L.M.H. Ulander, T. Martin, Swedish Defence Research Establishment (FOA), Linköping, Sweden
- J11:06** *An airborne low frequency radar sensor for vegetation biomass measurement: initial results from big thicket forest preserve Texas, USA*
M. L. Imhoff, NASA Goddard Space Flight Center, Greenbelt, USA ; W. Lawrance, Bowie State U., Bowie Maryland, USA ; P. Johnson, W. Holford, J. Hyer, L. May, Zimmerman Associates Inc, Vienna, USA ; P. Harcombe, Dpt of Ecology and Evolutionary Biology, Rice U., Houston, Texas, USA
- J11:07** *Two-dimensional adaptive compensation for ionosphere destructive effect on resolution of VHF space-borne SAR*
V.B Shteinshleiger, A. V. Dzenkevich, V. Yu. Manakov, L. Ya. Melnikov, G. S. Mizezhnikov, The Moscow Sci. Research Inst. of Instrument Engineering, Moscow, Russia
- J11:08** *Application of multi-frequency SAR system operating AT X,L,P and VHF bands for remote sensing*
A. Dzenkevich, V. Manakov, L. Mel'nikov, V. Plyushev, MNIP, Moscow, Russia ; B.Kutuza, A. Kalinkevitch, IRE RAN, Moscow, Russia ; V. Tchernook, PINRO, Murmansk, Russia ; M. Shubina, BNIKAM, Saint-Peterburg, Russia
- J11:09** *Exploitation background of the airborne VHF SAR as four-frequency radar complex Mars component for sea surface, sea ice and land monitoring*
V.N. Tsymbal, A. S. Kurekin, A. S. Gavrilenko, Kalmykov Center for Radiophysical Sensing of the Earth, Kharkov, Ukraine
- J11:10** *Results of sea surface radar sounding in 150 MHz band*
V.A. Butko, B. M. Egorov, Tomsk State U. of Control Systems and Radioelectronics, Tomsk, Russia

Session K09
Friday, July 17, PM
Indoor and Outdoor Propagation
 Organiser : H.T. Chuah
 Chairs : H.T. Chuah, M.S. Leong

- K09:01** *Fading statistics in the shadowed region of a tree*
 O. Siddiqui, S. Tjuatja, Wave Scattering Research Center, U. of Texas at Arlington, Arlington, TX, USA
- K09:02** *Analysis of radio-wave propagation in a four-layered anisotropic forest*
 L. W. Li, J. H. Koh, T. S. Yeo, M. S. Leong, P. S. Kooi, Communications de Microwave Division, Dpt. of Electrical Engineering, National U. of Singapore, Singapore, Russia
- K09:03** *Propagation measurements and modelling for an indoor wireless communication systems*
 S.Y. Tan, H. S. Tan, School of Electrical and Electronic Engineering, Nanyang Technological U., Singapore, Russia
- K09:04** *Radio propagation measurements and modeling*
 W. J. Lee, Y. S. Chen, K. S. Chen, Center for Space and Remote Sensing Research, National Central U., Chung-Li, Taiwan
- K09:05** *Indoor propagation measurements in various office and laboratory environments*
 C.H. Tek, H. T. Chuah, Faculty of Engineering, U. Telekom, Melaka, Malaysia
- K09:06** *Precise 3D based on ray launching application in urban propagation*
 M. Stanislawiak, S. Baranowski, P. Degauque, U. de Lille, Villeneuve d'Ascq, France
- K09:07** *A ray tracing code for radioelectric coverage in urban areas*
 C. Vittoli, L. Pisani, CRS4 - Centre for Advanced Studies, Research and Development in Sardinia, Cagliari, Italy

Session K10
Friday, July 17, PM
Sensors : Radar and Radiometer II

- K10:01** *Comparison of monostatic and bistatic radar imaging*
 S. Kargin, Turkish Airforce Academy, Yrsilyurt, Istanbul
- K10:02** *Near sea surface wind speed determination by combining altimeter and scattering data*
 A. Arakelyan, A. Hambaryan, Inst. of Radiophysics & Electronics of Armenian National Academy of Sci., Ashtarak-2, Armenia
- K10:03** *Radiation of a charged current stream, moving near surface of medium with periodically modulated parameters*
 N. Y. Grigorieva, K. A. Barsukov, Dpt. of Physics, Electrotechnical U., St.-Petersburg, Russia
- K10:04** *Laboratory investigations of temperature-wind features of ruffled water surface microwave radar cross section are due to temperature dependence of water surface short wave spectrum characteristics*
 A. Arakelyan, A. Gasparyan, V. Tovmasyan, Inst. of Radiophysics & Electronics of Armenian National Academy of Sci., Ashtarak-2, Armenia ; A. Hambaryan, M. Manoukian, Remote Observation Centre ECOSERV, Armenia
- K10:05** *Detection of helicopters by aircrafts overview radars*
 L.J. Melnikov, Dr. Gandurin, I. Samin, Moscow, Russia
- K10:06** *X - Band doppler - radar and radiometer system*
 A. Hambaryan, A. Arakelyan, Inst. of Radiophysics & Electronics of Armenian National Academy of Sci., Ashtarak-2, Armenia
- K10:07** *The secondary processing algorithm for radiometer aircraft radiomapping system*
 N. V. Ruzhentsev, Yu. A. Kuzmenko, Radio-Astronomy Inst., National Academy of Sci., Kharkov, Ukraine
- K10:08** *On possibility of reduction of mutual influence of cloudy atmosphere to problem of radiomapping*
 N. V. Ruzhentsev, A. V. Antonov, Yu. A. Gherasimov, Radio-Astronomy Inst., National Academy of Sci., Kharkov, Ukraine

- K10:09** *Bistatic radar cross sections of aircrafts in forward scattering*
M. V. Krutikov, Y. S. Chesnokov, Tomsk State U. of Control Systems and Radioelectronics, Tomsk, Russia
- K10:10** *Beyond-the-horizon target detection by bistatic radar*
A. M. Golikov, G.S.Sharygin, B. M. Egorov, Yu. S. Tchesnokov, L. I. Sharygina, Tomsk State U. of Control Systems and Radioelectronics, Tomsk, Russia

Session L09
Friday, July 17, PM
Electromagnetic Compatibility and Interference Problems
Organiser : S. Lindenmeier
Chairs : S. Lindenmeier, R. de Leo

- L09:01** *Simulation of Anechoic Chamber Using Transmission-Line Modelling*
J. Paul, C. Christopoulos, D. W. P. Thomas, Numerical Modelling Group, Dpt. of Electrical and Electronic Engineering, U. of Nottingham, Nottingham, UK
- L09:02** *Integrated Solution for Modelling of Multiconductors in TLM*
A. Wlodarczyk, V. Trenkic, R. Scaramuzza, Kimberley Communications Consultants Ltd., Nottingham, UK ; C. Christopoulos, Dpt. of Electrical and Electronic Engineering, U. of Nottingham, Nottingham, UK
- L09:03** *Analysis of ESD Suppressor Effects in Multilayer PCB*
R. De Leo, G. Gerri, A. Giambuzzi, V. Mariani Primiani, Dpt. di Elettronica ed Automatica U. di Ancona, Ancona, Italy
- L09:04** *Hybrid MoM Techniques for the Analysis and Optimisation of Handset Antennas Radiating Close to the Human Body*
H.-O. Ruoss, F. M. Landstorfer, R. Eidher, Inst. für Hochfrequenztechnik, U. of Stuttgart, Stuttgart, Germany
- L09:05** *Prediction of RF Field-Induced Interference Voltages at Implanted Cardiac Pacemakers*
J. Streckert, V. Hansen, Dpt. of Theoretical Electrical Engineering, U. of Wuppertal, Wuppertal, Germany
- L09:06** *Efficient Modelling of Inductive Coupling with the PPS-FD-Solver for EMC-Problems*
S. Lindenmeier, P. Russer, Technische U. München, Lehrstuhl für Hochfrequenztechnik, Munich, Germany
- L09:07** *An Hybrid TLM-Integral Equation Method for Efficient Modelling of EMC Problems*
L. Pierantoni, S., Lindenmeier, P. Russer, Technische U. München, Lehrstuhl für Hochfrequenztechnik, Munich, Germany
- L09:08** *The TLM-Integral Equation (TLMIE) Method for Solving Radiation Problems in Planar Waveguides*
L. Pierantoni, S. Lindenmeier, P. Russer, Technische U. München, Lehrstuhl für Hochfrequenztechnik, Munich, Germany

Session M09
Friday, July 17, PM
Short Range Microwave Applications
Organisers : Y. Leroy, A. Mamouni
Chairs : A. Mamouni, F. Bardati

- M09:01** *Recent investigations of the near-field zones of waveguide type antennas*
R. Ait-Abdelmalek, D. Land, U. of Glasgow, Dpt of Physics and Astronomy, Glasgow, U.K. ; B. Bocquet, K. Ridaoui, IEMN, U. des Sc. et Techn. de Lille, France
- M09:02** *An antenna design for near-field non-contacting microwave radiometry*
F. Bardati, DISP, U. di Roma "Tor Vergata", Roma, Italy ; E. Di Giampaolo, Dpt di Ingegneria Elettrica, U. dell'Aquila, L'Aquila, Italy
- M09:03** *Thermal conductivity and thermal emission inverse problems*
K.P.Gaikovich, Radiophysical Research Inst., Nizny Novgorod, Russia.

- M09:04 A new algorithm for microwave radiometric temperature profile retrieval*
S. Mizushina, T. Sugiura, K. Maruyama, H. Kitamura, Research Inst. of Electronics, Shizuoka U., Hamamatsu, Japan ; J. W. Hand, Radiological Sci. Unit, Hammersmith Hospital, London, UK.
- M09:05 Characterisation of breast tumors by microwave radiometric imaging*
S. Mouty, B. Bocquet, Y. Leroy, IEMN, U. des Sc. et Techn. de Lille, France.
- M09:06 A two dimensional thermal microsensor based on microwave correlation radiometry*
D. Allal, B. Bocquet, Y. Leroy, IEMN, U. des Sc. et Techn. de Lille, France.
- M09:07 Short range high data rate 60 Ghz, spread spectrum wireless communication system*
S. Levêque, N. Daniele, CEA-LETI (CEA/Technologies Avancées), Grenoble, France.
- M09:08 New telemetric and positioning sensors by microwave interferometry*
A. Benlarbi-Delaï, J. P. Covillers, Y. Leroy, IEMN, U. des Sc. et Techn. de Lille, France
- M09:09 Microwave sensor for the characterization of dielectric materials*
D. Glay, T. Lasri, K. Ridaoui, A. Mamouni, IEMN, U. des Sc et Techn. de Lille, France

Updated information will be posted on the World Wide Web at <http://www.piers.org>

PIERS 1998

NANTES 13-17 JULY 98

*Registration form to be returned by
post or by fax with your payment
to Cité des Congrès
5 rue de Valmy - BP 24102
44041 Nantes cedex 01 - FRANCE
FAX : 33 (0) 2 51 88 22 91*

Name : Surname
Organisation Title
Mailing address
.....
Postal code City Country
Telephone Fax E-mail
Accompanying person

REGISTRATION FEES (The official currency is French Francs)

The registration fee includes symposium materials, attendance at all sessions, welcome cocktail, refreshment breaks, and one copy of the abstracts book.

BEFORE MAY 15

participant 1800,00 FRF ☐

AFTER MAY 15

participant 2200,00 FRF ☐

TOTAL REGISTRATION FRF

For the pre-registered authors, please indicate the references of your abstracts
Please check the references on the Web

LUNCHES

Monday 13	☐	80,00 FRF X = FRF
Tuesday 14	☐	80,00 FRF X = FRF
Wednesday 15	☐	80,00 FRF X = FRF
Thursday 16	☐	80,00 FRF X = FRF
Friday 17	☐	80,00 FRF X = FRF

TOTAL LUNCHES FRF

GALA DINNER

Wednesday 15 "Château de la Poterie" ☐ 200,00 FRF X = FRF
(limited attendance)

TOTAL DINNER FRF

EXCURSIONS

Thursday 16	Mont Saint Michel - (one day tour)	☐	370,00 FRF X = FRF
Friday 17	Graves and Vineyard - (1/2 day tour)	☐	190,00 FRF X = FRF
Friday 17	Guided Tour of Nantes - (1/2 day tour)	☐	70,00 FRF X = FRF
Saturday 18	Châteaux de la Loire - (one day tour)	☐	480,00 FRF X = FRF

TOTAL EXCURSIONS FRF

Please see the second page

Please send me travel discount : ☐ Train (SNCF -20%) ☐ Flight AIR FRANCE (up to -50%)
valid only on the domestic network and for a round trip journey

Arrival Date /__ / __ / __ / __ / Departure Date /__ / __ / __ / __ /

3 ☆ Chain			490 FRF	690 FRF	450 + 50 = 500 FRF
3 ☆ Traditional			300 FRF	440 FRF	350 + 50 = 400 FRF
2 ☆ Chain or Trad			250 FRF	370 FRF	250 + 50 = 300 FRF
1 ☆ Traditional			160 FRF	230 FRF	150 + 50 = 200 FRF

YOU WILL PAY THE BALANCE OF YOUR STAY DIRECTLY TO THE HOTEL

IMPORTANT
No reservation will be made without a deposit. Then the confirmation will be sent together with a map of Nantes.
The number of rooms is limited, accommodation form will be accepted on a first come, first served basis.
The room allocation is definitive and can not be subject to modifications.

CANCELLATION POLICY:
Each cancellation received by mail or fax before June 15th will allow a refund of :
- the registration fees, minus 500 FRF per person for administrative costs
- the hotel deposit, minus 100 FRF per room for administrative costs
After June 15th, no refund can be made.

REGISTRATION FEES	 FRF
LUNCHES	 FRF
GALA DINNER	 FRF
EXCURSIONS	 FRF
ACCOMMODATION	 FRF
TOTAL PAYMENT	 FRF

☐ By Eurocheque or a cheque payable on a french bank, in french Currency payable to :
PIERS - Cité des Congrès

☐ By credit card : ☐ VISA ☐ MASTERCARD ☐ CB ☐ EUROCARD ☐

Credit card number / / / / / / / / / / / /
Expiry Date / / / /

Surname as appearing on card

Signature

104

NOTES

NOTES