



# **ICEAA 11**

**International Conference on Electromagnetics  
in Advanced Applications**

# **IEEE APWC 11**

**IEEE-APS**

**Topical Conference on Antennas and  
Propagation in Wireless Communications**

**September 12-16, 2011 • Torino, Italy**



# ICEAA 11

# IEEE APWC 11

*Organized by*

POLITECNICO DI TORINO  
CNR-IEIT  
COREP

*In cooperation with*

URSI, the International Union of Radio Science  
IEEE Antennas and Propagation Society  
IEEE Electron Devices Society  
IEEE Microwave Theory and Techniques Society  
IEEE Italy Section  
IEEE North Italy AP, ED, MTT Chapter

*Sponsored by*

Istituto Superiore Mario Boella  
sulle Tecnologie dell'Informazione  
e delle Telecomunicazioni.  
IEEE Antennas and Propagation Society  
Torino Wireless Foundation

Administrative support services  
provided by COREP

**FINAL PROGRAM**

## ICEAA - IEEE APWC COMMITTEES STEERING COMMITTEE

<b>Rodolfo S. Zich</b>	President of the Istituto Superiore Mario Boella President of the Torino Wireless Foundation
<b>Roberto D. Graglia</b>	Politecnico di Torino
<b>Paul D. Smith</b>	Macquarie University, Australia
<b>Riccardo Tascone</b>	Head of CNR-IEIT
<b>Piergiorgio L.E. Uslenghi</b>	University of Illinois at Chicago, USA

## ORGANIZING COMMITTEE

*Chairman of ICEAA - IEEE APWC Organizing Committee:*  
**Roberto D. Graglia** Politecnico di Torino

*Technical Program Chair:*  
**Piergiorgio L.E. Uslenghi** University of Illinois  
at Chicago, USA

*Publication Chair:*  
**Guido Lombardi** Politecnico di Torino, Italy

*IEEE-APS representative:*  
**W. Ross Stone**, USA

*IEEE-EDS, MTTs representative:*  
**Giovanni Ghione** Politecnico di Torino, Italy

*URSI representative:*  
**Piergiorgio L.E. Uslenghi** University of Illinois  
at Chicago, USA

*Members:*  
**Guido Lombardi** Politecnico di Torino, Italy  
**Giusy Spinasant** COREP, Torino, Italy

*Webmaster:*

**Guido Lombardi**

Politecnico di Torino, Italy

*Secretariat:*

**Giusy Spinasanta**

COREP, Torino, Italy

*Engineer:*

**Augusto Olivieri**

CNR-IEITI

*Treasurer/administration:*

**Giusy Spinasanta**

COREP, Torino, Italy

## SCIENTIFIC COMMITTEE

**P. L. E. Uslenghi**, USA, Chair

**S. Benedetto**, Italy

**T. S. Bird**, Australia

**M. F. Cátedra**, Spain

**W. C. Chew**, USA

**M. D'Amore**, Italy

**D. B. Davidson**, South Africa

**P. De Maagt**, The Netherlands

**R. D. Graglia**, Italy

**L. Gürel**, Turkey

**E. Heyman**, Israel

**I. V. Lindell**, Finland

**M. A. Lyalinov**, Russia

**H. Nakano**, Japan

**M. Orefice**, Italy

**A. J. Parfitt**, Australia

**P. Russer**, Germany

**P.D. Smith**, Australia

**Y. Wen**, People's Republic of China

**W. Wiesbeck**, Germany

**D. R. Wilton**, USA

## WELCOME TO THE CONFERENCES

On behalf of the Steering Committee, of the Organizing Committee and of the Scientific Committee, I am glad to welcome all participants to the thirteenth edition of ICEAA and to the first edition of IEEE APWC, the IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications. These two conferences share a common organization, registration fee, submission site, workshops and short courses, and social events.

These Conferences together have a wide scope, which includes all kinds of advanced applications in Electromagnetics and new technology developments. Broad areas are covered, ranging from Cognitive Radio to Electromagnetic Compatibility and Intentional Electromagnetic Interference, from Antennas, Propagation, and Components Technologies to Radar Cross Section and Asymptotic Techniques, from Electromagnetic Applications to Biomedicine to Computational Electromagnetics, from Wireless Communications to Metamaterials and Nano-magnetism. The two conferences altogether feature 45 sessions including twenty-three special sessions organized by renowned experts. The ICEAA 2011 Conference program consists of 31 sessions including sixteen Special Sessions; the IEEE APWC 2011 Conference program consists of 14 sessions including seven Special Sessions. More than 370 papers are scheduled, out of the 579 submitted. As in previous ICEAA editions invited papers will be presented at the two Conferences, giving recent information on the state of the art and new technologies. A half-day short course on "Advanced Design and Analysis of RFID Antennas" will be held on Friday morning, September 16, by Dr. A.S. Andrenko of the Fujitsu Laboratories, Japan. Another half-day short course on "A Hybrid Domain Decomposition Based Numerical and Ray Technique for Analysis/Synthesis of Large Conformal Phased Arrays on Complex Platforms" will also be held on Friday morning, September 16, by Prof. J.-F. Lee and P.H. Pathak of the Ohio State University, Columbus, Ohio, USA.

The Conferences are organized by the Politecnico di Torino and by the National Research Council of Italy. The Politecnico di Torino, a State University founded in 1859, is one of the major technical universities in Italy. The Politecnico currently numbers 26000 students, with about one third of the 16000 students in Engineering that follow curricula in Information Engineering.

The Conferences are held at the "Torino Incontra" Congress Center. This fully air-conditioned Congress Center is in Torino downtown, near important historical monuments, museums and parks. Don't miss the opportunity to visit so many interesting places in Torino and its surroundings: I am sure you will enjoy them.

We look forward to seeing you in Torino in September.

**Roberto D. Graglia**

*Chairman of the ICEAA- IEEE APWC Organizing Committee*

# GENERAL INFORMATION

## DATES AND LOCATION

The conferences will be held from 12th to 16th of September 2011, at the "Torino Incontra" Congress Center, Via Nino Costa 8, Torino (see map).

## OFFICIAL LANGUAGE

The official language will be English. No simultaneous translation will be provided.

## PROCEEDINGS

At the registration, each participant will receive a copy of the Conference Proceedings.

## REGISTRATION FEE

The ICEAA and the IEEE APWC conference share a common organization, registration fee, submission site, workshops and short courses, and social events. The registration fee is 690,00 Euro per person, VAT included. The registration fee for IEEE members is 650,00 Euro per person, VAT included. Full registration is required of all participants, including members of the Conference Committees, Session Chairs and Authors. A non-refundable registration for each paper has been required from the corresponding Author at the time of submission of the contribution in final form. The registration fee includes attendance to all sessions, luncheons and coffee breaks, banquet, and participants' briefcase containing the Conference Proceedings and other material.

## REGISTRATION AT THE CONFERENCE

A registration desk will be located in the Hall of the Congress Center. Accompanying persons and late registrants may register, or pre-registrants may pick up conference materials, at the following times: Monday: 8:00÷17:00, Tuesday through Thursday: 8:30÷17:00. The accompanying person fee is 120,00 Euro and includes only the banquet.

## MEALS AND REFRESHMENTS

Coffee breaks and luncheons are included in the registration fee. Luncheons will be served in the Conference Center.

## BANQUET

A banquet will be offered to the participants on **Wednesday night, at 20:00**, at the **Castello di Pavone**, via Dietro Castello, Pavone Canavese (Torino).

Please visit: [www.castellodipavone.com](http://www.castellodipavone.com)

Buses depart at 18:30 (**sharp**) from the Torino Incontra Congress Center. **Participants are requested to confirm at the Conference registration desk for their bus transportation.**

The winner(s) of the ICEAA - IEEE APWC 11 Young Scientist Award will be announced at the Banquet.

## PARKING

Unguarded parking facilities are available around the Congress Center area. However, to park in the centre of Torino, one has usually to buy a parking ticket at the vending machines located close to the parking area. In this part of town it is very difficult to find parking.

## AUDIOVISUAL EQUIPMENT

Each meeting room will be equipped with a notebook. Other equipment will be available only upon written request to the Organizing Committee, to be received before September 3. The presenting authors will not be allowed to use their personal computer for presentation; only the computer of the meeting rooms can be used for presentation.

## INTERNET CONNECTION

The Conference Centre features WI-FI Internet access. Pre-paid cards can be purchased to log in at the cost of about 10 Euro, for unlimited access during the conference dates. We remind all participants that in order to buy an internet card from the Conference Center they are obliged by Italian regulations to provide a photocopy of their passport or of other valid ID documents.

## MESSAGES

During the Conference, messages may be directed to participants via Email ([iceaa11@iceaa.polito.it](mailto:iceaa11@iceaa.polito.it)) or by calling the Congress Center at +39-011-557-6846. Messages will be posted in the main hall of the Congress Center.

## TRANSPORTATION

Torino International Airport is located about 15 km from the center of the city, and may be reached by bus or taxi. It is conveniently connected to the main European airports (Amsterdam, Brussels, Frankfurt, London, Paris, Rome, Zurich and many others), through which intercontinental connections are available. Alternatively, the intercontinental airport of Milano-Malpensa (120 km from Torino) or the international airport of Milano-Linate (150 km from Torino) may be used. The "Torino Incontra" Congress Center is in the center of the city and is served by several buses and tramways from other parts of town. Tickets cannot be bought on the bus or tram; they must be purchased in advance, at newsstands, bars, tobacco shops, etc.

## WEATHER

In mid-September, the weather in north-western Italy is usually fair, with temperatures ranging between 15°C to 25°C. Occasional showers are possible; therefore raincoats or umbrellas may be useful.

## HOTEL ACCOMMODATIONS

A number of hotel rooms in different price categories have been booked for the period September 11 to 17: to make reservations, please use the form available on [www.iceaa.net](http://www.iceaa.net), and send it as soon as possible to:

### **EVENTI E TURISMO - Hotel Reservation Center**

Via Assietta 14 - 10128 Torino

Tel. +39 011 5091200 Fax +39 011 5091240

**E-mail:** [info@eventieturismo.it](mailto:info@eventieturismo.it)

It is advisable to make an early reservation because hotels are generally full. A credit card number must guarantee reservations.

## ACCOMPANYING PERSON PROGRAMME

For the latest information on the Accompanying Person Programme and other Social Events please check [www.iceaa.net](http://www.iceaa.net), or refer to the Conference registration desk.

## OTHER ACTIVITIES

In September there are a number of interesting events in Torino, such as the music festival "Settembre Musica", art exhibitions, etc. Detailed information will be available at the Conference registration desk.

## USEFUL ADDRESSES

*For technical and scientific aspects:*

### **ICEAA Secretariat**

Dipartimento di Elettronica, Politecnico di Torino

Corso Duca degli Abruzzi 24, 10129 Torino

Tel. +39-011-564-4000

(-4056, Prof. R.D. Graglia; -4012, Dr. G. Lombardi)

Fax +39-011-564-4015/-4099

E-mail: [iceaa11@iceaa.polito.it](mailto:iceaa11@iceaa.polito.it)

*For logistics aspects:*

### **COREP** (Mrs. Giusy Spinasantà)

Corso Trento, 13

10129 Torino, Italy

Tel.: +39 011 19742433

Fax: +39 011 19742419

E-mail: [gspinasanta@corep.it](mailto:gspinasanta@corep.it)

*For hotel reservations:*

### **EVENTI E TURISMO - Hotel Reservation Center**

Via Assietta 14 - 10128 Torino

**Tel. +39 011 5091200 Fax +39 011 5091240**

**E-mail:** [info@eventieturismo.it](mailto:info@eventieturismo.it)

## TECHNICAL EXHIBITION

A technical exhibition will be held in the area near the Conference Rooms. Exhibitors and others requiring further information on this matter should contact:

**COREP** (Mrs. Giusy Spinasantà)

Tel. +39 011 19742433 - Fax: +39 011 19742419

## **ICEAA - IEEE APWC '11 YOUNG SCIENTIST AWARD**

A certificate and a prize of 800 Euro will be awarded to the young scientist who has authored the best ICEAA or IEEE APWC paper in terms of content and impact on Electromagnetics, either as a single author or as the first author of a team of no more than three authors. The finalists for this Award must present their paper in a special poster session scheduled for Monday afternoon, September 12 2011, in the coffee-break area. In case of eligible coauthors who are registered participants at ICEAA - IEEE APWC, each awardee will receive a certificate and the cash award will be shared equally among them. The winner(s) of the ICEAA - IEEE APWC '11 Young Scientist Award will be announced at the Conference Banquet on Wednesday evening, September 14, 2011. Since the award announcement and presentation are made at the Banquet, all candidates are expected to attend the Banquet.

### ***SHORT COURSE ON* ADVANCED DESIGN AND ANALYSIS OF RFID ANTENNAS**

Dr. Andrey S. Andrenko of the YRP R&D Center, Fujitsu Laboratories LTD, Yokosuka, Japan, will hold a half-day short course on Advanced Design and Analysis of RFID Antennas, on Friday morning, September 16. Participants may register for this short course at the conference registration desk. The cost of the short course is 120,00 Euro (VAT included).

### ***SHORT COURSE ON* A HYBRID DOMAIN DECOMPOSITION BASED NUMERICAL AND RAY TECHNIQUE FOR ANALYSIS/SYNTHESIS OF LARGE CONFORMAL PHASED ARRAYS ON COMPLEX PLATFORMS**

Prof. Jin-Fa Lee and Prabhakar H. Pathak of The Ohio State University, Columbus, Ohio, USA, will hold a half-day short course on A Hybrid Domain Decomposition Based Numerical and Ray Technique for Analysis/Synthesis of Large Conformal Phased Arrays on Complex Platforms, on Friday Morning, September 16. Participants may register for this short course at the conference registration desk. The cost of the short course is 120,00 Euro (VAT included).

# CONFERENCE SCHEDULE

## MONDAY, SEPTEMBER 12

SALA GIOLITTI	SALA EINAUDI	SALA SELLA	SALA CAVOUR
<p><b>Session 1 ICEAA</b></p> <p><b>Organized by V. Metlushko</b></p> <p>Nano-Magnetism, Magnetic Materials and Applications</p> <p>Chair: V. Metlushko, P. Vavassori</p> <p>8:20 ÷ 11:20</p>	<p><b>Session 3 IEEE APWC</b></p> <p><b>Organized by D. Erricolo and J.A. Sjogren</b></p> <p>Combining Electro- magnetic Propaga- tion Models with Sensing and Geolocation</p> <p>Chairs: D. Erricolo, J.A. Sjogren</p> <p>8:20 ÷ 11:20</p>	<p><b>Session 5 ICEAA</b></p> <p>Electromagnetic Modelling of Devices and Circuits</p> <p>Chairs: S. Koziel, A. Monorchio</p> <p>8:20 ÷ 11:20</p>	<p><b>Session 8 ICEAA</b></p> <p><b>Organized by P. Russer</b></p> <p>Network Methods Applied to Electromagnetic Field Computation</p> <p>Chairs: P. Russer S. Wane</p> <p>8:20 ÷ 11:20</p>
<p><b>Formal Opening</b></p> <p>11:20 ÷ 12:20</p>			
<p><b>Session 2 ICEAA</b></p> <p><b>Organized by G.N. Georgiev and M.N. Georgieva- Grosse</b></p> <p>Future Challenges in Mathematical and Computational Electromagnetics and Its Applications</p> <p>Chairs: G.N. Georgiev, M.N. Georgieva- Grosse</p> <p>14:00 ÷ 19:00</p>	<p><b>Session 4 IEEE APWC</b></p> <p>Low-profile and UWB antennas</p> <p>Chairs: M. Dionigi, W. Wiesbeck</p> <p>14:00 ÷ 18:40</p>	<p><b>Session 6 ICEAA</b></p> <p><b>Organized by K. Oughstun</b></p> <p>Applications of Electromagnetic Precursors</p> <p>Chairs: N. Cartwright, K. Oughstun</p> <p>14:00 ÷ 16:00</p>	<p><b>Session 9 IEEE APWC</b></p> <p><b>Organized by C.G. Christodoulou and A. Monorchio</b></p> <p>Antenna Design for Cognitive Radio Applications</p> <p>Chairs: C.G. Christodoulou, A. Monorchio</p> <p>14:00 ÷ 16:00</p>
		<p><b>Session 7 ICEAA</b></p> <p>Electromagnetic Theory</p> <p>Chairs: A. Buyukaksoy, P.L.E. Uslenghi</p> <p>16:20 ÷ 18:40</p>	<p><b>Session 10 IEEE APWC</b></p> <p>Active and Smart Antennas</p> <p>Chairs: H. Nakano, P.F. Sammartino</p> <p>16:20 ÷ 18:40</p>
<p>Coffee break 10:00 10:20 Lunch break 12:20 14:00 Coffee break 16:00 16:20</p>			
<p><b>POSTER SESSION FOR YOUNG SCIENTIST AWARD</b> 14:00 ÷ 18:40</p>			

## TUESDAY, SEPTEMBER 13

SALA GIOLITTI	SALA EINAUDI	SALA SELLA	SALA CAVOUR
<p style="text-align: center;"><b>Session 11 ICEAA</b></p> <p style="text-align: center;"><b>Organized by R.D. Graglia and D.R. Wilton</b></p> <p style="text-align: center;">Numerical Methods in Electromagnetics</p> <p>Chairs: R.D. Graglia, D.R. Wilton</p> <p style="text-align: center;">8:00 ÷ 17:00</p>	<p style="text-align: center;"><b>Session 13 ICEAA</b></p> <p style="text-align: center;"><b>Organized by D. Erricolo, J.T. Parker, and M.C. Wicks</b></p> <p style="text-align: center;">Electromagnetism and Signal Process- ing for Distributed Radar Sensing</p> <p>Chairs: D. Erricolo, J.T. Parker, M.C. Wicks</p> <p style="text-align: center;">8:00 ÷ 11:20</p>	<p style="text-align: center;"><b>Session 15 ICEAA</b></p> <p style="text-align: center;"><b>Organized by C. Craeye, A. Massa, and G. Oliveri</b></p> <p style="text-align: center;">Advances on Syn- thesis and Analysis of Large-Scale Antenna Arrays</p> <p>Chairs: C. Craeye, A. Massa, G. Oliveri</p> <p style="text-align: center;">8:00 ÷ 11:40</p>	<p style="text-align: center;"><b>Session 18 ICEAA</b></p> <p style="text-align: center;">Frequency Selective Surfaces</p> <p>Chairs: G. Addamo, R. Tascone</p> <p style="text-align: center;">8:00 ÷ 9:00</p>
	<p style="text-align: center;"><b>Session 14 ICEAA</b></p> <p style="text-align: center;">Electromagnetic Measurements</p> <p>Chairs: B. Otto, O.A. Peverini</p>	<p style="text-align: center;"><b>Session 16 ICEAA</b></p> <p style="text-align: center;">Optical, Sub-mm and mm Technologies</p> <p>Chairs: A. Mediavilla, N. Neumann</p> <p style="text-align: center;">14:00 ÷ 16:00</p>	<p style="text-align: center;"><b>Session 19 ICEAA</b></p> <p style="text-align: center;">Printed and Conformal Antennas</p> <p>Chairs: G. Addamo, R. Tascone</p> <p style="text-align: center;">9:00 ÷ 12:20</p>
		<p style="text-align: center;"><b>Session 17 IEEE APWC</b></p> <p style="text-align: center;">RFID Technologies</p> <p>Chairs: A.S. Andrenko, F. Sottile</p> <p style="text-align: center;">16:20 ÷ 18:40</p>	<p style="text-align: center;"><b>Session 20 IEEE APWC</b></p> <p style="text-align: center;"><b>Organized by M.N. Georgieva- Grosse and G.N. Georgiev</b></p> <p style="text-align: center;">Advances in Wireless Commu- nications and Their Applications</p> <p>Chairs: G.N. Georgiev, M.N. Georgieva- Grosse</p> <p style="text-align: center;">14:00 ÷ 15:40</p>
<p style="text-align: center;"><b>Session 12 ICEAA</b></p> <p style="text-align: center;"><b>Organized by J.-F. Lee and Y. Shao</b></p> <p style="text-align: center;">Multi-Physics Modeling and Simulations</p> <p>Chairs: J.-F. Lee, Y. Shao</p> <p style="text-align: center;">17:00 ÷ 18:40</p>	<p style="text-align: center;"><b>Session 21 ICEAA</b></p> <p style="text-align: center;"><b>Organized by G. Manara and P.H. Pathak</b></p> <p style="text-align: center;">Hybrid Ray, Beam &amp; Numerical Methods</p> <p>Chairs: G. Manara, P.H. Pathak</p> <p style="text-align: center;">16:20 ÷ 19:00</p>		
<p>Coffee break 10:00 10:20 Lunch break 12:20 14:00 Coffee break 16:00 16:20</p>			

## WEDNESDAY, SEPTEMBER 14

SALA GIOLITTI	SALA EINAUDI	SALA SELLA	SALA CAVOUR
<p><b>Session 22 ICEAA</b></p> <p><b>Organized by G. Vecchi and F. Vipiana</b></p> <p>Numerical Methods for Challenging Multi-Scale Problems (HIRF Synthetic Environment)</p> <p>Chairs: G. Vecchi, F. Vipiana</p> <p style="text-align: center;">8:00 ÷ 12:40</p>	<p><b>Session 24 ICEAA</b></p> <p>Radar Cross Section and Radar Imaging</p> <p>Chairs: D.G. Johnson, P.L.E. Uslenghi</p> <p style="text-align: center;">8:00 ÷ 10:00</p>	<p><b>Session 26 ICEAA</b></p> <p>Antennas and Arrays</p> <p>Chairs: O.B. Jacobs, G. Virone</p> <p style="text-align: center;">8:00 ÷ 10:00</p>	<p><b>Session 28 ICEAA</b></p> <p>Electromagnetic Applications to Nanotechnology</p> <p>Chairs: V. Metlushko, G. Slepyan</p> <p style="text-align: center;">8:00 ÷ 9:20</p>
<p><b>Session 23 IEEE APWC</b></p> <p>Electromagnetic Propagation</p> <p>Chairs: C.G. Christodoulou, J. Simpson</p> <p style="text-align: center;">14:00 ÷ 17:40</p>	<p><b>Session 25 IEEE APWC</b></p> <p><b>Organized by H. Nakano</b></p> <p>Wideband and Multiband Antenna Technologies</p> <p>Chair: H. Nakano, C. Phongcharoen- panich</p> <p style="text-align: center;">10:20 ÷ 17:20</p>	<p><b>Session 27 ICEAA</b></p> <p><b>Organized by J.M. Arnold and P.D. Smith</b></p> <p>Mathematical Advances in Electromagnetics</p> <p>Chairs: J.M. Arnold, P.D. Smith</p> <p style="text-align: center;">10:20 ÷ 17:20</p>	<p><b>Session 29 ICEAA</b></p> <p>Materials and Metamaterials</p> <p>Chairs: V. Metlushko, G. Slepyan</p> <p style="text-align: center;">9:20 ÷ 12:20</p>
<p><b>Session 30 ICEAA</b></p> <p><b>Organized by L. Klinkenbusch, and K. Langenberg</b></p> <p>Fields and Waves</p> <p>Chairs: L. Klinkenbusch, K. Langenberg</p> <p style="text-align: center;">14:00 ÷ 17:40</p>	<p>Coffee break 10:00 10:20 Lunch break 12:20 14:00 Coffee break 16:00 16:20</p>		

**Banquet (20:00) - Buses depart at 18:30**

## THURSDAY, SEPTEMBER 15

SALA GIOLITTI	SALA EINAUDI	SALA SELLA	SALA CAVOUR	SALA STAMPA
<p><b>Session 31 ICEAA</b></p> <p>Integral Equations And Hybrid Methods</p> <p>Chairs: C. Brennan, D. B. Davidson, J.-F. Lee, Y. Shao</p> <p>8:20 ÷ 12:00</p>	<p><b>Session 33 IEEE APWC</b></p> <p>Cognitive Radio &amp; Wireless Networks</p> <p>Chairs: D. Erricolo, K. Kagoshima</p> <p>8:00 ÷ 12:20</p>	<p><b>Session 36 ICEAA</b></p> <p><b>Organized by D.V. Giri</b></p> <p>High-Power Electromagnetics</p> <p>Chairs: D.V. Giri, I. Kohlberg</p> <p>8:20 ÷ 12:00</p>	<p><b>Session 38 ICEAA</b></p> <p>Inverse Scattering and Remote Sensing</p> <p>Chairs: R. Pierri, R. Solimene</p> <p>8:00 ÷ 11:00</p> <p><b>Session 39 ICEAA</b></p> <p><b>Organized by J. Simpson</b></p>	<p><b>Session 42 IEEE APWC</b></p> <p><b>Organized by E. Pancera and W. Wiesbeck</b></p> <p>Ultra Wide-band Body Area Networks and Medical Applications</p> <p>Chair: W. Wiesbeck</p> <p>8:20 ÷ 11:00</p>
<p><b>Session 32 ICEAA</b></p> <p>Finite Methods</p> <p>Chairs: C. Brennan, D. B. Davidson, J.-F. Lee, Y. Shao</p> <p>14:00 ÷ 17:00</p>	<p><b>Session 34 IEEE APWC</b></p> <p>Channel Modeling</p> <p>Chairs: A.V. Bosisio, E. Plouhinec</p> <p>14:00 ÷ 16:00</p> <p><b>Session 35 IEEE APWC</b></p> <p>Antennas for Wireless Applications</p> <p>Chairs: C. Ullrich, G. Virone</p> <p>16:20 ÷ 18:00</p>	<p><b>Session 37 ICEAA</b></p> <p><b>Organized by F. Canavero</b></p> <p>Electromagnetic Analysis of Packages and Boards</p> <p>Chairs: F. Canavero, T. Sudo</p> <p>14:00 ÷ 18:00</p>	<p>Propagation Models for VLF to SHF EM Waves</p> <p>Chairs: C. Carrano, J. Simpson</p> <p>11:00 ÷ 12:20</p> <p><b>Session 40 ICEAA</b></p> <p><b>Organized by G. Slepyan</b></p> <p>Electrodynamics of Nanowires and Nanotubes</p> <p>Chairs: G. Miano, G. Slepyan</p> <p>14:00 ÷ 15:40</p> <p><b>Session 41 ICEAA</b></p> <p>Electromagnetic Applications to Biomedicine</p> <p>Chairs: D. Pouhè, O.H. Talcoth</p> <p>16:20 ÷ 18:00</p>	

Coffee break 10:00 10:20  
Lunch break 12:20 14:00  
Coffee break 16:00 16:20

## FRIDAY, SEPTEMBER 16

SALA GIOLITTI	SALA SELLA	SALA STAMPA	SALA ANTONELLI
<p style="text-align: center;"><b>Session 43 IEEE APWC</b></p> <p style="text-align: center;"><b>Organized by D. Tuninetti</b></p> <p>Topics in Physical Layer Communications</p> <p>Chair: D. Tuninetti</p> <p style="text-align: center;">8:20 ÷ 10:00</p>	<p style="text-align: center;"><b>Session 45 ICEAA</b></p> <p style="text-align: center;">EMC/EMI/EMP</p> <p>Chairs: F. Canavero, D. Trincherò</p>	<p style="text-align: center;"><b>Short Course on Advanced Design and Analysis of RFID Antennas</b></p> <p style="text-align: center;"><b>Lecturer: A.S. Andrenko</b></p>	<p style="text-align: center;"><b>Short Course on A Hybrid Domain Decomposition Based Numerical and Ray Technique for Analysis/Synthesis of Large Conformal Phased Arrays on Complex Platforms</b></p> <p style="text-align: center;"><b>Lecturers: J.-F. Lee, and P.H. Pathak</b></p>
<p style="text-align: center;"><b>Session 44 IEEE APWC</b></p> <p style="text-align: center;"><b>Organized by J.C. Vardaxoglou</b></p> <p>Antennas with FSS, AMC and Periodic Structures</p> <p>Chair: R. Tascone, J.C. Vardaxoglou</p> <p style="text-align: center;">10:20 ÷ 12:00</p>	<p style="text-align: center;">8:00 ÷ 12:20</p>	<p style="text-align: center;">8:20 ÷ 12:20</p>	<p style="text-align: center;">8:20 ÷ 12:20</p>
Coffee break 10:00 10:20			

# FINAL PROGRAM

Monday, September 12, 2011, Sala Giolitti

**Session 01 • ICEAA**  
**NANO-MAGNETISM, MAGNETIC MATERIALS AND APPLICATIONS**

**Organized by V. Metlushko**

Chair: V. Metlushko, P. Vavassori

8:20 AM - 8:40 AM

**TOWARDS 3-DIMENSIONAL MAGNETIC DATA STORAGE**

*R. P. Cowburn, Cambridge University, United Kingdom;*

8:40 AM - 9:00 AM

**SKYRMIONS IN PERPENDICULAR MAGNETIC ANISOTROPY DOTS: IMAGING AND SIMULATIONS**

*C. Moutafis, EPFL & Paul Scherrer Institut, Switzerland;*  
*J. Rhensius, Paul Scherrer Institut, Switzerland; A. Bisig, EPFL & Paul Scherrer Institut, Switzerland; F. Buettner, EPFL & Paul Scherrer Institut, & TU Berlin, Switzerland;*  
*C. Barton, C. Morrison, T. Thomson, University of Manchester, United Kingdom; C. Tieg, Helmholtz-Zentrum Berlin, Germany;*  
*S. Schaffert, B. Pfau, C. M. Guenther, TU Berlin, Germany;*  
*S. Eisebitt, Helmholtz-Zentrum Berlin & TU Berlin, Germany;*  
*M. Kläeui, EPFL & Paul Scherrer Institut, Switzerland;*

9:00 AM - 9:20 AM

**ARTIFICIAL TUNING OF MAGNETIZATION REVERSAL IN NANO-SIZED MAGNETS**

*P. Vavassori, J. M. Porro, A. Berger, CIC nanoGune Consolider, Donostia-San Sebastián, Spain; M. Grimsditch, Argonne National Laboratory, Argonne, Illinois, United States;*  
*V. Metlushko, University of Illinois at Chicago, Chicago, Illinois, United States; B. Ilich, Cornell University, Ithaca, New York, United States;*

9:20 AM - 9:40 AM

**HIGH-RESOLUTION IMAGING OF DOMAIN WALLS UNDER THE INFLUENCE OF SPIN CURRENTS**

*R. Allenspach, P. Eib, F. Schwarz, A. Bischof, IBM Research - Zurich, Zurich, Switzerland;*

9:40 AM - 10:00 AM

**MAGNETIC MICROPATTERNS FOR BIOLOGICAL CELL MANIPULATION AND TRANSPORT**

*T. Byvank, G. Vieira, A. Chen, B. Miller, B. Yu, L. J. Lee, J. J. Chalmers, R. Sooryakumar, Ohio State University, Columbus, Ohio, United States;*

10:20 AM - 10:40 AM

**3-D MAGNETIC NANOSTRUCTURES**

*J. Sautner, K. Panchihewa, University of Illinois at Chicago, Chicago, United States; B. Ilic, Cornell University, Ithaca, United States; P. Vavassori, CIC NanoGUNE Consolider, Donostia-San Sebastian, Spain; A. Metlushko, V. Metlushko, University of Illinois at Chicago, Chicago, United States;*

10:40 AM - 11:00 AM

**NOVEL ANDREEV BOUND STATES IN NANOSTRUCTURED SUPERCONDUCTORS**

*S.-H. Lin, University of Notre Dame, Notre Dame, United States; M.V. Milosevic, F. Peeters, Universiteit Antwerpen, Belgium; B. Janko, University of Notre Dame, Notre Dame, United States;*

11:00 AM - 11:20 AM

**LOW-FIELD FMR STUDIES OF MAGNETIC CONFINEMENT EFFECTS IN PATTERNED FERROMAGNETIC THIN FILMS**

*V. Bhat, J. Woods, J. T. Hastings, L. E. De Long, University of Kentucky, Lexington, United States; J. Sklenar, J. B. Ketterson, Northwestern University, Evanston, Illinois, United States; O. Heinonen, Argonne National Laboratory, Illinois, United States; K. Rivkin, Seagate Technologies, Bloomington, New York, United States; V. Metlushko, University of Illinois-Chicago, United States;*

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Monday, September 12, 2011, Sala Giolitti

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**Session 02 • ICEAA  
FUTURE CHALLENGES IN MATHEMATICAL  
AND COMPUTATIONAL ELECTROMAGNETICS  
AND ITS APPLICATIONS**

**Organized by G.N. Georgiev and M.N. Georgieva-Grosse**

Chair: G.N. Georgiev, M.N. Georgieva-Grosse

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2:00 PM - 2:20 PM

**THEORY OF THE L NUMBERS: DEFINITION, COMPUTATIONAL MODELING, PROPERTIES AND APPLICATION**

*G. N. Georgiev, University of Veliko Tirnovo, Veliko Tirnovo, Bulgaria; M. N. Georgieva-Grosse, Consulting in Physics and Computer Sciences, Gerlingen, Germany;*

2:20 PM - 2:40 PM

**MAXWELL'S EQUATIONS FOR BI-ANISOTROPIC MATERIALS AS A SYMMETRIC HYPERBOLIC SYSTEM: THEORY AND COMPUTER APPLICATION**

*V.G. Yakhno, Dokuz Eylul University, Izmir, Turkey; T.M. Yakhno, Izmir University, Izmir, Turkey;*

2:40 PM - 3:00 PM

**SIMULATION OF ELECTROMAGNETIC PULSES IN WAVEGUIDES AT LARGE DISTANCES**

*B. Nilsson, Linnaeus University, Vaxjo, Sweden; S. Nordebo, Linnaeus University, Vaxjo, Sweden; A. Karlsson, Lund University, Lund, Sweden; G. Cinar, Gebze Institute of Technology, Gebze, Turkey;*

3:00 PM - 3:20 PM

**ELECTROMAGNETIC WAVE SCATTERING BY SMALL BODIES AND CREATING MATERIALS WITH DESIRED PERMEABILITY: NUMERICAL IMPLEMENTATION**

*M.I. Andriychuk, Pidstryhach Institute for Applied Problems in Mechanics and Mathematics, Lviv, Ukraine;*

3:20 PM - 3:40 PM

**CIRCUIT APPROACH FOR A GENERAL STUDY OF FREQUENCY SELECTIVE SURFACES**

*F. Mesa, F. Medina, Universidad de Sevilla, Sevilla, Spain; M. Garcia-Vigueras, Universidad Politecnica de Cartagena, Cartagena, Spain; R. Rodriguez-Berral, Universidad de Sevilla, Sevilla, Spain; J.L. Gomez-Tornero, Universidad Politecnica de Cartagena, Cartagena, Spain;*

3:40 PM - 4:00 PM

**BEAM TRACING THEORY IN MINKOWSKI SPACE**

*E. Hasanoglu (Hasanov), Işık University, Turkey;*

4:20 PM - 4:40 PM

**COMPARATIVE STUDY ON THE COMPUTATIONAL MODELING AND APPLICATION OF THE CLASSES OF A, B, C NUMBERS**

*M. N. Georgieva-Grosse, Consulting in Physics and Computer Sciences, Gerlingen, Germany; G. Georgiev, University of Veliko Tirnovo, Veliko Tirnovo, Bulgaria;*

4:40 PM - 5:00 PM

**DETERMINING THE NATURAL ABSORPTION AND RADIATION MODES OF LOSSY PERIODIC STRUCTURES USING ENERGY ABSORPTION INTERFEROMETRY**

*S. Withington, C.N. Thomas, University of Cambridge, Cambridge, United Kingdom; C.V. Craeye, Université catholique de Louvain, Louvain-la-Neuve, Belgium;*

5:00 PM - 5:20 PM

**EIGENANALYSIS OF ARBITRARILY SHAPED 2-D AND 3-D CLOSED AND OPEN-RADIATING STRUCTURES: A REVIEW**

*G.A. Kyriacou, C.L. Zekios, S. Lavdas, E. Aitidis, C.S. Lavranos, P. C. Allilomes, Democritus University of Thrace, Xanthi, Greece;*

5:20 PM - 5:40 PM

**ON THE CLASSICAL ELECTRODYNAMICS OF UNCHARGED PARTICLES**

*S. Sautbekov, G. Alkina, Eurasian National University, Astana, Kazakhstan;*

5:40 PM - 6:00 PM

**LOSSES OF ELECTROMAGNETIC ENERGY IN THE TIME OF INTERACTION OF COUNTER-PROPAGATING WAVES IN THE ABSORBING PLATE, PLACED IN A WAVEGUIDE**

*E. Gevorkyan, Moscow State University of Economics, Statistics and Informatics, Russia;*

6:00 PM - 6:20 PM

**FULL-WAVE ANALYTICAL METHODS FOR THE ELECTROMAGNETIC CHARACTERIZATION OF METAMATERIAL WAVEGUIDES**

*A.L. Topa, Instituto de Telecomunicações, Instituto Superior Técnico, Lisbon, Portugal*

6:20 PM - 6:40 PM

**A MODIFIED METAMATERIAL INSPIRED ANTENNA SOLUTION FOR REDUCTION OF THE SPECIFIC ABSORPTION RATE IN THE HEAD**

*I. B. Bonev, S. C. D. Barrio, O. Franek, G. F. Pedersen, Aalborg University, Aalborg, Denmark;*

6:40 PM - 7:00 PM

**EXPLICIT SOLUTION OF THE VOLTERRA INTEGRAL EQUATION FOR TRANSIENT FIELDS ON INHOMOGENEOUS ARBITRARILY SHAPED DIELECTRIC BODIES**

*A. Al-Jarro, University of Nottingham, Nottingham, United Kingdom; H. Bağcı, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia; T. Benson, P. Sewell, A. Vukovic, University of Nottingham, Nottingham, United Kingdom;*

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Monday, September 12, 2011, Sala Einaudi

**Session 03 • IEEE APWC  
COMBINING ELECTROMAGNETIC PROPAGATION MODELS  
WITH SENSING AND GEOLOCATION**

**Organized by D. Erricolo and J.A. Sjogren**

Chair: D. Erricolo, J.A. Sjogren

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8:20 AM - 8:40 AM

**PROPAGATION THROUGH SIMPLE WINDOW FRAME STRUCTURES AT OUTDOOR/INDOOR INTERFACE**

*R. Sato, Niigata University, Niigata, Japan; H.S. Shirai, Chuo University, Tokyo, Japan;*

8:40 AM - 9:00 AM

**WAVE MODELING AND FAULT LOCALIZATION FOR UNDERWATER POWER CABLES**

*S Nordebo, B. Nilsson, T. Biro, Linnaeus University, Vaxjo, Sweden; G. Cinar, Gebze Institute of Technology, Gebze, Turkey; M. Gustafsson, Lund University, Lund, Sweden; S. Gustafsson, Linnaeus University, Vaxjo, Sweden; A. Karlsson, Lund University, Lund, Sweden; M. Sjoberg, ABB, Karlskrona, Sweden;*

9:00 AM - 9:20 AM

**EMBEDDED RAY TRACING TECHNIQUES TO IMPROVE PERFORMANCE IN MIMO MOBILE RADIO SYSTEMS: A PRELIMINARY STUDY**

*V. Degli Esposti, E. Tarantino, F. Fuschini, M. Barbiroli, University of Bologna, Italy; G. Riva, Fondazione Ugo Bordoni, Bologna, Italy;*

9:20 AM - 9:40 AM

**BASIC CONCEPTS FOR THE MODELING AND CORRECTION OF GNSS MULTIPATH EFFECTS USING RAY TRACING AND SOFTWARE RECEIVERS**

*M. Liso Nicolas, M. Jacob, Technische Universität Braunschweig, Braunschweig, Germany; M. Smyrniotis, S. Schön, Leibniz Universität Hannover, Hannover, Germany; T. Kürner, Technische Universität Braunschweig, Braunschweig, Germany;*

9:40 AM - 10:00 AM

**TROPOSPHERIC-PROPAGATION INDUCED DISTORTION OF WIDEBAND SIGNALS**

*Chandra*

10:20 AM - 10:40 AM

**LOCALIZATION AND POSITIONING OF ANY SUBSCRIBER IN INDOOR ENVIRONMENTS ON THE BASIS OF ANALYSIS OF JOINT AOA-TOA SIGNAL DISTRIBUTION**

*Y. Ben-Shimol, N. Blaunstein, Ben-Gurion University, Israel;*

10:40 AM - 11:00 AM

**VERIFICATION OF AN OFDM-BASED RANGE AND DOPPLER ESTIMATION ALGORITHM WITH RAY-TRACING**

*Y.L. Sit, C. Sturm, L. Reichardt, W. Wiesbeck, T. Zwick, Karlsruhe Institute of Technology, Karlsruhe, Germany;*

11:00 AM - 11:20 AM

**TWO-DIMENSIONAL POSITION MEASUREMENT USING MAGNETOQUASISTATIC FIELDS**

*D.D. Arumugam, Carnegie Mellon University, Pittsburgh, United States; J.D. Griffin, Disney Research Pittsburgh, Pittsburgh, United States; D.D. Stancil, North Carolina State University, Raleigh, United States; D.S. Ricketts, Carnegie Mellon University, Pittsburgh, United States;*

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Monday, September 12, 2011, Sala Einaudi

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**Session 04 • IEEE APWC  
LOW-PROFILE AND UWB ANTENNAS**

Chair: M. Dionigi, W. Wiesbeck

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2:00 PM - 2:20 PM

**A NOVEL CPW-FED RECTANGULAR WIDE SLOT ANTENNA FOR UWB APPLICATIONS**

*M. D'Amico, R. Cassetta, Politecnico di Milano, Milano, Italy;*

2:20 PM - 2:40 PM

**SUSPENDED PATCH ANTENNA WITH Z-TYPE STRIP PLATE AS BROADBAND IMPEDANCE TRANSFORMER**

*C. Karakuş, Istanbul Kultur University, Istanbul, Turkey;  
M. F. Demirkol, AVEA İletişim Hizmetleri, Istanbul, Turkey;*

2:40 PM - 3:00 PM

**FAST DESIGN OF UWB ANTENNAS USING ELECTROMAGNETIC MODELS**

*S. Koziel, S. Ogurtsov, Reykjavik University, Reykjavik, Iceland;*

3:00 PM - 3:20 PM

**A UWB BAND-REJECTED ANTENNA WITH EMBEDDED NONUNIFORM MICROSTRIP LINE**

*N. Guan, R. Hosono, H. Tayama, H. Furuya, Fujikura Ltd., Sakura, Japan; K. Yashiro, Chiba University, Chiba, Japan;*

3:20 PM - 3:40 PM

**A LOW PROFILE WIDEBAND MONOPOLE ANTENNA WITH DOUBLE FINGER RING FOR BAN**

*H. Goto, H. Iwasaki, Shibaura Institute of Technology, Saitama, Japan;*

3:40 PM - 4:00 PM

**ARTIFICIAL NEURAL NETWORKS FOR MULTI-SLOT MICROSTRIP PATCH ANTENNAS**

*W. C. Araújo, A. G. Assunção, L. M. Mendonça, Federal University of Rio Grande do Norte, Natal, Brazil;*

4:20 PM - 4:40 PM

**A TRIPLE BAND ANTENNA FOR A WIRELESS USB DONGLE**

*S.H. Lee, Y.J. Sung, Kyonggi University, Suwon, South Korea;*

4:40 PM - 5:00 PM

**A FRACTAL GEOMETRY, MULTI-BAND, MINIATURIZED MONOPOLE ANTENNA DESIGN FOR UWB WIRELESS APPLICATIONS**

*A.O. Kaka, M. Toycan, V. Bashiry, Cyprus International University, Nicosia, Turkey; H. Ademgil, European University of Lefke, Lefke, Turkey; S. D. Walker, University of Essex, Colchester, United Kingdom;*

5:00 PM - 5:20 PM

**PERFORMANCE ENHANCEMENT OF A MICROSTRIP ANTENNA BY SUPPRESSION OF SURFACE WAVES USING EBG STRUCTURE IN MULTIPLE LAYER SUBSTRATE**

*N. Rao, V. Dinesh Kumar, Indian Institute of Information Technology Design and Manufacturing (IIIT DM) Jabalpur, India;*

5:20 PM - 5:40 PM

**A DUAL-BAND HIGH IMPEDANCE SURFACE MOUNTED WITH A SPIRAL ANTENNA FOR GNSS APPLICATIONS**

*M. Pigeon, PRES university of Toulouse, Toulouse, France; C. Morlaas, ENAC, Toulouse, France; H. Aubert, LAAS-CNRS, Toulouse, France;*

5:40 PM - 6:00 PM

**DESIGN OF VIA HOLE FED PRINTED CIRCULAR DISC MONOPOLE ANTENNA FOR UWB SYSTEMS**

*M. Dionigi, M. Mongiardo, University of Perugia, Italy;*

6:00 PM - 6:20 PM

**A NOVEL LEAKY MODE AND MODE COUPLING EFFECTS OCCURRING IN FINITE SUBSTRATE MICROSTRIP LINES AND PATCH ANTENNAS.**

*P. C. Allilomis, K.L. Zekios, A. Stafyllidis, G.A. Kyriacou, Democritus University of Thrace, Xanthi, Greece;*

6:20 PM - 6:40 PM

**MULTIBAND PLANAR MICROSTRIP ANTENNA**

*H. Kumar, Bhagwant Institute of Technology, Muzaffarnagar, India; M.D. Upadhayay, IIT Delhi, India; V.K. Rai, Sachdeva Institute of Technology, Mathura, India; L. Varshney, Amity University, Noida, India; R. K. Kanth, University of Turku, Finland, Finland;*

**Session 05 • ICEAA**

**ELECTROMAGNETIC MODELING OF DEVICES AND CIRCUITS**

Chair: S. Koziel, A. Monorchio

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8:20 AM - 8:40 AM

**COARSE-MESH EM MODELS FOR DESIGN OF SIC AND PLANAR TRANSITIONS**

*S. Koziel, S. Ogurtsov, Reykjavik University, Reykjavik, Iceland;*

8:40 AM - 9:00 AM

**DESIGN OF DIELECTRIC RESONATOR ANTENNAS USING SURROGATE OPTIMIZATION**

*S. Koziel, S. Ogurtsov, Reykjavik University, Reykjavik, Iceland;*

9:00 AM - 9:20 AM

**EFFICIENT DESIGN OF SUBSTRATE INTEGRATED WAVEGUIDE FILTERS USING A HYBRID MOM/MM ANALYSIS METHOD AND EFFICIENT RECTANGULAR WAVEGUIDE DESIGN TOOLS**

*E. Diaz Caballero, H. Esteban, Universidad Politecnica de Valencia, Valencia, Spain; A. Belenguer, Universidad de Castilla-La Mancha, Cuenca, Spain; V.E. Boria, J.V. Morro, Universidad Politecnica de Valencia, Valencia, Spain; J. Cascon, Universidad de Castilla-La Mancha, Cuenca, Spain;*

9:20 AM - 9:40 AM

**TLM DESIGN OF A COMPACT PIFA RECTENNA**

*T.Q.V Hoang, University of Nice Sophia Antipolis, Valbonne, France; A. Douyere, University of La Reunion, Saint-Denis Message, France; J-L. Dubard, University of Nice Sophia Antipolis, Valbonne, France; J-D. Lan Sun Luk, University of La Reunion, Saint-Denis Message, France;*

9:40 AM - 10:00 AM

**IMPROVEMENT FOR THE DESIGN EQUATIONS FOR TAPERED MICROSTRIP-TO-SUBSTRATE INTEGRATED WAVEGUIDE TRANSITIONS**

*E.Miralles, H. Esteban, C. Bachiller, Universidad Politécnica de Valencia, Valencia, Spain; Á. Belenguer, Universidad de Castilla-La Mancha, Cuenca, Spain; V. Boria, Universidad Politécnica de Valencia, Valencia, Spain;*

10:20 AM - 10:40 AM

**EQUIVALENT NETWORK SYNTHESIS FOR MULTI-PORT MICROWAVE STRUCTURES**

*A. Gorbunova, Y. Kuznetsov, A. Baev, Moscow Aviation Institute (State Technical University), Russia; J. Russer, P. Russer, Technische Universität München, Germany;*

10:40 AM - 11:00 AM

**NONLINEAR INDUCTANCE CALCULATIONS OF A FERRITE INDUCTOR WITH A 2D FINITE ELEMENT MODEL**

*R.A. Salas, J. Pleite, Universidad Carlos III de Madrid, Spain;*

11:00 AM - 11:20 AM

**STUDY OF THE PROPULSION STRENGTH OF THE RAILS LAUNCHER**

*M. Abdellah, A. Gaafazi, Polytechnic School Algiers, Algeria;  
H. Mohellebi, Tizi-Ouzou University, Algeria;*

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Monday, September 12, 2011, Sala Sella

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**Session 06 • ICEAA**

**APPLICATIONS OF ELECTROMAGNETIC PRECURSORS**

**Organized by K. Oughstun**

Chair: N. Cartwright, K. Oughstun

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2:00 PM - 2:20 PM

**A BRIEF OVERVIEW OF ELECTROMAGNETIC PRECURSORS**

*K. E. Oughstun, University of Vermont, Burlington, Vermont,  
United States;*

2:20 PM - 2:40 PM

**EVERYTHING IS A PRECURSOR: THE ASYMPTOTIC SINGULAR VALUE DECOMPOSITION FOR TRANSMISSION THROUGH ABSORBING MEDIA**

*T.E. Olson, The University of Florida, Gainesville, Florida, United States;*

2:40 PM - 3:00 PM

**PRECURSORS IN MEDIA WITH ABNORMAL GROUP VELOCITY AND THEIR APPLICATIONS**

*M. Mojahedi, C. Sarris, University of Toronto, Toronto, Ontario, Canada;*

3:00 PM - 3:20 PM

**PRECURSORS OF CHIRPED PULSES IN DISPERSIVE MEDIA**

*N.A. Cartwright, State University of New York at New Paltz, New Paltz, New York, United States;*

3:20 PM - 3:40 PM

**REFLECTION AND TRANSMISSION OF PULSED ELECTROMAGNETIC FIELDS THROUGH MULTILAYERED BIOLOGICAL MEDIA**

*C.L. Palombini, K.E. Oughstun, University of Vermont, Burlington, Vermont, United States;*

3:40 PM - 4:00 PM

**ANALYSIS OF DISPERSIVE EFFECTS AND ENHANCED MEDIUM PENETRABILITY IN WIDE-BAND PULSE PROPAGATION THROUGH SPARSE DISCRETE MEDIA**

*E.H. Bleszynski, M.K. Bleszynski, T. Jaroszewicz, Monopole Research, Thousand Oaks, California, United States; R. Albanese, Brooks City-Base, San Antonio, Texas, United States;*

**Session 07 • ICEAA  
ELECTROMAGNETIC THEORY**

Chair: A. Buyukaksoy, P.L.E. Uslenghi

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4:20 PM - 4:40 PM

**RESONANCES ON DISCRETE ELECTROMAGNETIC TIME REVERSAL APPLICATIONS**

*J.M. Velázquez Arcos, C.A. Vargas, J.L. Fernández-Chapou, J. Granados-Samaniego, Universidad Autónoma Metropolitana, Mexico;*

4:40 PM - 5:00 PM

**ELECTRODYNAMIC MODEL OF MICROSTRIP RECTENNA**

*D.V. Semenikhina, A.I. Semenikhin, South Federal University, Taganrog, Russia;*

5:00 PM - 5:20 PM

**GLOBALLY CONVERGENT ALGORITHM TO FIND THE ZEROS OF THE CROSS-PRODUCT OF BESSEL FUNCTIONS**

*E. Sorolla, M. Mattes, EPFL, Lausanne, Switzerland;*

5:20 PM - 5:40 PM

**ELECTROMAGNETIC DRIFT**

*J.L. Fernández Chapou, J. Granados Samaniego, J.M. Velázquez Arcos, C.A. Vargas, Universidad Autónoma Metropolitana, Mexico D.F., Mexico;*

5:40 PM - 6:00 PM

**A WIENER-HOPF ANALYSIS OF THE COAXIAL WAVEGUIDE RADIATOR**

*I. H. Tayyar, Gebze Institute of Technology, Kocaeli, Turkey; A. Buyukaksoy, Okan University, Istanbul, Turkey;*

6:00 PM - 6:20 PM

**A NEW METHOD FOR TRANSIENT ANALYSIS OF A DIPOLE ABOVE A LOSSY GROUND USING QUADRATIC B-SPLINE TEMPORAL BASIS FUNCTIONS**

*Z. H. Firouzeh, R. Moini, S. H. H. Sadeghi, Amirkabir University of Technology, Tehran, Iran; R. Faraji-Dana, University of Tehran, Tehran, Iran; G. A. E. Vandenbosch, ESAT-TELEMIC, Leuven, Belgium;*

6:20 PM - 6:40 PM

**ADVANTAGES AND DISADVANTAGES OF THE INTRODUCTION OF IMT SYSTEMS AT 800 MHZ BAND**

*M. Barbiroli, University of Bologna, Italy; C. Carciofi, D. Guiducci, Fondazione Ugo Bordoni, Bologna, Italy; A. Guidotti, University of Bologna, Italy; E. Tarantino, G. Riva, Fondazione Ugo Bordoni, Bologna, Italy;*

**Session 08 • ICEAA**  
**NETWORK METHODS APPLIED TO ELECTROMAGNETIC**  
**FIELD COMPUTATION**

**by P. Russer**  
Chair: P. Russer, S. Wane

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8:20 AM - 8:40 AM

**NODE-BASED METHODS: A UNIFYING APPROACH TO**  
**DEVELOPING NUMERICAL TECHNIQUES**

*Z. D. Chen, Y.Yu, Dalhousie University, Halifax, Canada;*

8:40 AM - 9:00 AM

**ON THE ASSOCIATION OF POWER-FLOW WITH CIRCUIT**  
**TERMINALS**

*M.T. Ivrlac, J. A. Nossek, Technische Universität München, Germany;*

9:00 AM - 9:20 AM

**MULTI-PHYSICS POWER-DRIVE-LEVEL DEPENDANT**  
**EQUIVALENT CIRCUIT MODELS EXTRACTION FOR**  
**ELECTRO-MECHANICAL RESONATORS**

*S. Wane, NXP-Semiconductors, France; D. Bajan, ISAE Université de Toulouse, France;*

9:20 AM - 9:40 AM

**TRANSMISSION LINE MATRIX ALGORITHMS FOR HIGH**  
**PERFORMANCE COMPUTING HARDWARE WITH**  
**GRAPHICS PROCESSING UNITS**

*P. So, University of Victoria, Victoria, Canada;*

9:40 AM - 10:00 AM

**NETWORK REPRESENTATIONS FOR WIRELESS POWER**  
**TRANSFER REALIZED WITH RESONANT INDUCTIVE**  
**COILS**

*M. Dionigi, M. Mongiardo, University of Perugia, Italy;*

10:20 AM - 10:40 AM

**ELECTROMAGNETIC MODELING AND ANALYSIS OF**  
**RECONFIGURABLE ON-CHIP AND OFF-CHIP ANTENNA**

*D. Bajan, Université de Toulouse, France; S. Wane, NXP Semiconductors, France;*

10:40 AM - 11:00 AM

**NETWORK METHODS APPLIED TO THE COMPUTATION**  
**OF STOCHASTIC ELECTROMAGNETIC FIELDS**

*J.A. Russer, P. Russer, Technical University Munich, Munich, Germany;*

11:00 AM - 11:20 AM

**A RECIPROCITY-BASED FRAMEWORK FOR THE EFFICIENT**  
**MODELING OF ANTENNA-WIRELESS CHANNEL**  
**INTERACTION**

*V. Vairavanathan, C. Chang, N. Sood, C. D. Sarris, University of Toronto, Canada;*

**Session 09 • IEEE APWC**  
**ANTENNA DESIGN FOR COGNITIVE RADIO APPLICATIONS**  
**Special Session**

**Organized by C.G. Christodoulou and A. Monorchio**

Chair: C.G. Christodoulou, A. Monorchio

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2:00 PM - 2:20 PM

**ELECTRICALLY TUNABLE HANDSET ANTENNA**

*R.J. Langley, L. Liu, University of Sheffield, Sheffield, United Kingdom;*

2:20 PM - 2:40 PM

**RECONFIGURABLE FILTER EMBEDDED INTO AN ANTENNA FOR UWB COGNITIVE RADIO ENVIRONMENT**

*M. E Zamudio, Y. Tawk, University Of New Mexico, United States; J. Costantine, California State University Fullerton, United States; S.E. Barbin, Universidad de Sao Paulo, Brazil; C. G. Christodoulou, University Of New Mexico, United States;*

2:40 PM - 3:00 PM

**A UWB ANTENNA COMBINED WITH A RECONFIGURABLE BANDPASS FILTER FOR COGNITIVE RADIO APPLICATIONS**

*M. Al-Husseini, A. Ramadan, American University of Beirut, Lebanon; M.E. Zamudio, C.G. Christodoulou, University of New Mexico, United States; A. El-Hajj, K.Y. Kaban, American University of Beirut, Lebanon;*

3:00 PM - 3:20 PM

**APPLYING GRAPH MODELS AND NEURAL NETWORKS ON RECONFIGURABLE ANTENNAS FOR COGNITIVE RADIO APPLICATIONS**

*J. Costantine, California State University Fullerton, Fullerton, United States; Y.Tawk, E. Al Zuraiqi, University of New Mexico, United States; S. E. Barbin, University of Sao Paulo, Brazil; C. G. Christodoulou, University of New Mexico, United States;*

3:20 PM - 3:40 PM

**RECONFIGURABLE ANTENNAS FOR COGNITIVE RADIO**

*P. Gardner, P.S. Hall, M.R. Hamid, The University of Birmingham, United Kingdom; F. Ghanem, Prince Mohammad Bin Fahd University, Saudi Arabia;*

3:40 PM - 4:00 PM

**FREQUENCY-RECONFIGURABLE ANTENNA FOR SOFTWARE DEFINED RADIO DRIVEN BY PIC MICROCONTROLLERS**

*S. Genovesi, A. Monorchio, M. Borgese, S. Pisu, Università di Pisa, Italy; F. M. Valeri, Microwave Communications, Pisa, Italy;*

**Session 10 • IEEE APWC  
ACTIVE AND SMART ANTENNAS**

Chair: H. Nakano, P.F. Sammartino

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4:20 PM - 4:40 PM

**A UNIQUE RECONFIGURABLE SLOT ARRAY ANTENNA FOR WIMAX APPLICATION**

*M.F. Jamlos, M. Jusoh, M.F. Malek, UniMAP, Arau, Malaysia; M.A. Jamlos, UTM, Malaysia; Z.A. Ahmad, A.H. Ismail, UniMAP, Arau, Malaysia; M.R. Kamarudin, UTM, Malaysia; M.H. Muslim, National Space Agency (ANGKASA), Kuala Lumpur, Malaysia;*

4:40 PM - 5:00 PM

**COMPACT PLANAR L-BAND ANTENNA ARRAYS WITH OPTIMAL DIVERSITY PERFORMANCE**

*S. Irteza, N. Murtaza, Ilmenau University of Technology, Ilmenau, Germany; S. Caizzzone, Germany Aerospace Center (DLR), Wessling, Germany; R. Stephan, M. A. Hein, Ilmenau University of Technology, Ilmenau, Germany;*

5:00 PM - 5:20 PM

**WIRELESS INTERFERENCE EFFECTS IN MIMO RADARS**

*P.F. Sammartino, D. Tarchi, G. Baldini, European Commission, Ispra, Italy;*

5:20 PM - 5:40 PM

**EFFICIENCY CHARACTERIZATION OF VECTOR-SENSOR ANTENNAS WITH DISTRIBUTED ELEMENTS FOR 3D DIRECTION FINDING**

*A. Chabory, C. Morlaas, B. Souny, ENAC, Toulouse, France;*

5:40 PM - 6:00 PM

**A HYBRID DOMAIN DECOMPOSITION AND TRUNCATION METHOD OF EIGENFUNCTION EXPANSION FOR THE ANALYSIS OF CLOSED CAVITIES**

*C. L. Zekios, P. C. Allilomes, G.A. Kyriacou, Democritus University of Thrace, Greece;*

6:00 PM - 6:20 PM

**CHIRAL METAMATERIAL BASED CIRCULARLY POLARIZED MICROSTRIP ANTENNAS**

*M. Malathong, A. Sonsilphong, W. Panpradit, N. Wongkasem, Khon Kaen University, Khon Kaen, Thailand;*

6:20 PM - 6:40 PM

**ON THE DESIGN OF A BUTLER MATRIX-BASED BEAMFORMER PROVIDING LOW SIDELobe LEVEL AND ENHANCED BEAM-POINTING ACCURACY**

*F.E. Fakoukakis, G.A. Kyriacou, Democritus University of Thrace, Xanthi, Greece;*

**Session 11 • ICEAA**  
**NUMERICAL METHODS IN ELECTROMAGNETICS**  
**Organized by R.D. Graglia and D.R. Wilton**  
Chair: R.D. Graglia, D.R. Wilton

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8:00 AM - 8:20 AM

**METHOD OF MOMENTS ACCELERATIONS AND EXTENSIONS IN FEKO**

*U. Jakobus, M. Bingle, W. Burger, D. Ludick, M. Schoeman, J. van Tonder, EM Software & Systems - S.A. (Pty) Ltd, Stellenbosch, South Africa;*

8:20 AM - 8:40 AM

**IMPROVEMENT OF THE EFFICIENT INTEGRAL EQUATION MODELING OF PRINTED ANTENNAS ON COATED CYLINDERS**

*T. Bertuch, G.M. Guarin Cardenas, C. Galvis Salzburg, Fraunhofer FHR, Wachtberg, Germany;  
G. Vecchi, Politecnico di Torino, Torino, Italy;*

8:40 AM - 9:00 AM

**A DOMAIN DECOMPOSITION METHOD FOR SOLVING 3-D COMPLEX STRUCTURES**

*V. Lancellotti, B.P. de Hon, A.G. Tijhuis, Technical University of Eindhoven, Netherlands;*

9:00 AM - 9:20 AM

**AN INVESTIGATION OF NEAR-ZONE PRECONDITIONING TECHNIQUES FOR INTEGRAL EQUATION SOLUTIONS BY METHOD OF MOMENTS**

*O. Wiedenmann, T.F. Eibert, TU München, Munich, Germany;*

9:20 AM - 9:40 AM

**THE FDTD METHOD AND ITS RELATION TO FIBONACCI POLYNOMIALS**

*R.F. Remis, Delft University of Technology, Delft, Netherlands;*

9:40 AM - 10:00 AM

**TEMPORAL DISCRETIZATION SCHEMES OF FINITE ELEMENT METHODS: A CRITICAL COMPARISON**

*J. Cigánek, Z. Raida, Brno University of Technology, Brno, Czech Republic;*

10:20 AM - 10:40 AM

**EFFICIENT METHOD OF MOMENTS ANALYSIS OF AN INFINITE ARRAY OF TRIANGULAR NANOCCLUSERS IN THE OPTICAL FREQUENCY RANGE**

*N.A. Ozdemir, Université catholique de Louvain, Louvain-la-Neuve, Belgium; C. Simovski, D.Morits, Aalto University, Aalto, Finland; C.V.G. Craeye, Université catholique de Louvain, Louvain-la-Neuve, Belgium;*

10:40 AM - 11:00 AM

**GPU ACCELERATION OF ELECTROMAGNETIC SCATTERING ANALYSIS USING THE METHOD OF MOMENTS**

*E. Lezar, D.B. Davidson, Stellenbosch University, Stellenbosch, South Africa;*

11:00 AM - 11:20 AM

**THE METHOD OF MANUFACTURED SOLUTIONS FOR THE VERIFICATION OF COMPUTATIONAL ELECTROMAGNETICS.**

*R.G. Marchand, D.B. Davidson, Stellenbosch University, Stellenbosch, South Africa;*

11:20 AM - 11:40 AM

**ACCELERATED DIRECT SOLUTION OF THE MOM LINEAR SYSTEM USING BLOCK COMPRESSION AND NESTED FACTORIZATION**

*A. Heldring, J.M. Rius, Universitat Politècnica de Catalunya, Barcelona, Spain;*

11:40 AM - 12:00 PM

**IMPROVING THE INTEGRAL EQUATION OF THE HYBRID FEM-RBCI METHOD**

*S. Alfonzetti, University of Catania, Catania, Italy; G. Borzi, University of Messina, Messina, Italy; N. Salerno, University of Catania, Catania, Italy;*

12:00 PM - 12:20 PM

**SOLVING ELECTROMAGNETIC SCATTERING FROM 3D COMPOSITE PENETRABLE STRUCTURE AND PEC BY THE IE-FFT METHOD**

*X. Feng, J. HU, G. Wang, Z.Nie, University of Electronic Science and Technology of China, Chengdu, China;*

2:00 PM - 2:20 PM

**DESIGNED BASIS FUNCTIONS FOR SPEED AND STABILITY**

*F. Canning, Mav6, Alexandria, United States;*

2:20 PM - 2:40 PM

**ACCELERATION OF THE MIXED-POTENTIAL LAYERED-MEDIUM GREEN'S FUNCTIONS FOR PROBLEMS WITH THIN LAYERS**

*M. A. Francavilla, Istituto Superiore Mario Boella (ISMB), Torino, Italy; D. R. Jackson, D. R. Wilton, University of Houston, Houston, Texas, United States;*

2:40 PM - 3:00 PM

**ADVANCES IN PO DRIVEN MOM**

*M. Tasic, B. Kolundzija, University of Belgrade, Belgrade, Serbia;*

3:00 PM - 3:20 PM

**TIME-DOMAIN BIE ANALYSIS OF LARGE ELECTROMAGNETIC SCATTERING PROBLEMS WITH IMPEDANCE BOUNDARY CONDITION**

*N.E. Cinosi, S.P. Walker, M.J. Bluck, Imperial College, London, United Kingdom;*

3:20 PM - 3:40 PM

**A CHARACTERISTIC BASIS FUNCTION (CBF) APPROACH FOR THE ELECTROMAGNETIC RADIATION BY LARGE CONDUCTING STRUCTURES WITH APERTURES**

*M. De Gregorio, G. Tiberi, A. Monorchio, Università di Pisa, Italy;*

3:40 PM - 4:00 PM

**EFFICIENT MACHINE PRECISION COMPUTATION OF IMPEDANCE MATRIX ELEMENTS IN SURFACE INTEGRAL EQUATION FORMULATIONS**

*A. G. Polimeridis, Ecole Polytechnique Fédérale de Lausanne, Switzerland; J. M. Tamayo, Polytechnic University of Catalonia, Barcelona, Spain; J. R. Mosig, Ecole Polytechnique Fédérale de Lausanne, Switzerland;*

4:20 PM - 4:40 PM

**MODELING BRAIDED SHIELDS VIA MULTIPOLE REPRESENTATIONS FOR THE BRAID CHARGES AND CURRENTS**

*W. A. Johnson, W. L. Langston, L. I. Basilio, L. K. Warne, Sandia National Laboratories, Albuquerque, United States;*

4:40 PM - 5:00 PM

**COMPUTATION OF SCATTERING BY LARGE INHOMOGENEOUS TARGETS USING HYBRID H- AND P-TYPE MULTIPLICATIVE SCHWARZ (H-P-MUS) PRECONDITIONED FE-BIMLMFA**

*M.-L. Yang, X.-Q. Sheng, Beijing Institute of Technology, China;*

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Tuesday, September 13, 2011, Sala Giolitti

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**Session 12 • ICEAA  
MULTI-PHYSICS MODELING AND SIMULATIONS  
Organized by J.-F. Lee and Y. Shao**

Chair: J.-F. Lee, Y. Shao

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5:00 PM - 5:20 PM

**HYBRIDIZATION OF DIFFERENT NUMERICAL METHODS USING DOMAIN DECOMPOSITION**

*K. Zhao, M.H. Commens, N. Lambert, Ansys Inc., Pittsburgh, United States;*

5:20 PM - 5:40 PM

**NUMERICAL SIMULATION OF WATER DROPLETS IN PRESENCE OF STRONG ELECTRIC-FIELDS**

*H. Songoro, E. Gjonaj, T. Weiland, Technische Universitaet Darmstadt, Darmstadt, Germany;*

5:40 PM - 6:00 PM

**MULTI-PHYSICS ANALYSIS OF HIGH-POWER ICS USING NON-CONFORMAL DOMAIN DECOMPOSITION METHOD**

*Y. Shao, Z. Peng, J.-F. Lee, The Ohio State University, Columbus, Ohio, United States;*

6:00 PM - 6:20 PM

**COUPLED THERMAL-FLUID-ELECTRICAL SIMULATION FOR PRINTED CIRCUIT BOARD DESIGN**

*J. E. Bracken, S. V. Polstyanko, ANSYS Inc., Pittsburgh, United States; S. G. Pytel, Jr., ANSYS Inc., Gilbert, United States; I. Waldron, ANSYS Inc., Palm Beach, United States;*

6:20 PM - 6:40 PM

**SIMULATION OF TEMPERATURE DEPENDENT MATERIALS  
IN HIGH-FREQUENCY FILTERS USING CST STUDIO  
SUITE™ 2011**

*D. Farina, P. Hammes, P. Thoma, CST, Darmstadt, Germany*

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Tuesday, September 13, 2011, Sala Einaudi

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**Session 13 • ICEAA**

**ELECTROMAGNETISM AND SIGNAL PROCESSING FOR  
DISTRIBUTED RADAR SENSING**

**Organized by D. Erricolo, J.T. Parker, M.C. Wicks**

Chair: D. Erricolo, J.T. Parker, M.C. Wicks

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8:00 AM - 8:20 AM

**DETECTABILITY OF CHAOTIC WAVEFORMS**

*I. Bradaric, G. T. Capraro, C. T. Capraro, Capraro Technologies  
Inc., Utica, New York, United States;*

8:20 AM - 8:40 AM

**THE IMPACT OF MUTUAL COUPLING ON MIMO RADAR  
EMISSION**

*B. Cordill, J. Metcalf, S.A. Seguin, University of Kansas, United  
States; D. Chatterjee, University of Missouri, Kansas City, United  
States; S.D. Blunt, University of Kansas, United States;*

8:40 AM - 9:00 AM

**SPACE-FREQUENCY SPARSE REGULARIZATION FOR THE  
LINEAR SAMPLING METHOD**

*H.F Alqadah, University of Cincinnati, Cincinnati, Ohio, United  
States; J. Parker, Air Force Research Laboratory, Dayton, Ohio,  
United States; M. Ferrara, Matrix Engineering, Dayton, Ohio,  
United States; H. Fan, University of Cincinnati, Cincinnati, Ohio,  
United States;*

9:00 AM - 9:20 AM

**SYNTHETIC APERTURE INVERSION WITH SPARSITY  
CONSTRAINTS**

*B. Yazici, Rensselaer Polytechnic Institute, Troy, United States;  
L. Wang, Nanjing University of Aeronautics and Astronautics,  
Nanjing, China; K. Duman, Rensselaer Polytechnic Institute,  
Troy, United States;*

9:20 AM - 9:40 AM

**IMAGING MOVING TARGETS IN A MULTI-PATH ENVIRON-  
MENT USING MULTIPLE SENSORS**

*A. Miranda, US Air Force Research Laboratory, Wright-  
Patterson AFB, Dayton, Ohio, United States; M. Cheney,  
Rensselaer Polytechnic Institute, Troy, New York, United States;*

9:40 AM - 10:00 AM

**MIMO RADAR TOPOLOGY: A SYSTEMATIC APPROACH TO  
THE PLACEMENT OF THE ANTENNAS**

*P.F. Sammartino, D. Tarchi, European Commission, Ispra, Italy;  
C.J. Baker, Ohio State University, Columbus, Ohio, United  
States;*

10:20 AM - 10:40 AM

**INTEGRATING ELECTROMAGNETICS AND SIGNAL PROCESSING INTO NEW RADAR ALGORITHMS**

*D.F. Fuller, D.E. Hack, S. Sutara, A. Tempelis, M. Jussaume, M. A. Saville, J. A. Jackson, Air Force Institute of Technology, Ohio, United States;*

10:40 AM - 11:00 AM

**STARING RF SIGNAL PROCESSING CHALLENGES**

*L.J. Moore, J.T. Parker, L.A. Gorham, U.K. Majumder, M.J. Minardi, S.M. Scarborough, US Air Force Research Laboratory, Wright-Patterson AFB, Ohio, United States;*

11:00 AM - 11:20 AM

**COGNITION AND RADAR SYSTEMS**

*C. J. Baker, Ohio State University, Columbus, Ohio, United States;*

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Tuesday, September 13, 2011, Sala Einaudi

**Session 14 • ICEAA  
ELECTROMAGNETIC MEASUREMENTS**

Chair: B. Otto, O.A. Peverini

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11:40 AM - 12:00 PM

**COMPLEX PERMITTIVITY MEASUREMENTS OF KAROO SOIL FOR THE SQUARE KILOMETRE ARRAY**

*A. J. Otto, H. C. Reader, R. G. Marchand, University of Stellenbosch, Stellenbosch, South Africa;*

12:00 PM - 12:20 PM

**RESISTIVE SENSOR FOR HIGH POWER MICROWAVE PULSE MEASUREMENT**

*M. Dagys, Z. Kancleris, P. Ragulis, R. Simniskis, CPST, Vilnius, Lithuania;*

2:00 PM - 2:20 PM

**ANALYSIS OF AN OPEN-ENDED COAXIAL PROBE MEASUREMENT SYSTEM FOR MAGNETIC MATERIALS**

*J. Koselj, Nanotesla Institut Ljubljana, Ljubljana, Slovenia;  
V.B. Bregar, Kolektor Magma, Ljubljana, Slovenia;*

2:20 PM - 2:40 PM

**COMPENSATION OF THE PROBE POSITIONING ERRORS IN THE SPHERICAL NF-FF TRANSFORMATION FOR ELONGATED ANTENNAS**

*F. D'Agostino, F. Ferrara, C. Gennarelli, R. Guerriero, M. Migliozi, D. Spagnuolo, University of Salerno, Fisciano, Italy;*

2:40 PM - 3:00 PM

**A NEW METHOD FOR FINDING THE ELECTRICAL CHARGE DISTRIBUTION**

*P. Ghofrani, H. Amindavar, Amirkabir University of Technology, Tehran, Iran;*

3:00 PM - 3:20 PM

**A HYBRID TSD-RSOL TECHNIQUE FOR THE MEASUREMENT OF NON-INSERTABLE DEVICES**

*O.A. Peverini, G. Addamo, G. Virone, R. Tascone, IEIT-CNR, Italy; R. Orta, Politecnico di Torino, Torino, Italy;*

3:20 PM - 3:40 PM

**ELECTROMAGNETIC MATERIAL CHARACTERIZATION OF CONDUCTOR-BACKED MEDIA USING A NDE MICROSTRIP PROBE**

*M.J Havrilla, Air Force Institute of Technology, Ohio, United States; A.E. Bogle, University of Dayton Research Institute, Dayton, Ohio, United States; M.W. Hyde IV, Air Force Institute of Technology, Ohio, United States; E.J. Rothwell, Michigan State University, East Lansing, Michigan, United States;*

3:40 PM - 4:00 PM

**THE CAVITY BPM FOR THE MICROWAVE MEASUREMENT OF THE TRANSVERSAL POSITION OF RELATIVISTIC ELECTRON BUNCHES TRAVELLING IN A VACUUM BEAMPIPE**

*M. Dal Forno, R. Vescovo, University of Trieste, Italy; P. Craievich, R. De Monte, A. Borga, M. Predonzani, M. Ferianis, T. Borden, Sincrotrone Trieste S.C.p.A., Italy;*

4:20 PM - 4:40 PM

**ELECTROMAGNETIC AND CIRCUIT MODELLING OF THE PIN GAP EFFECT IN COAXIAL CONNECTORS UP TO 110 GHZ**

*A. Abramowicz, A. Lewandowski, W. Wiatr, Warsaw University of Technology, Warsaw, Poland;*

4:40 PM - 5:00 PM

**CHARACTERIZATION OF A TRAIN COMPARTMENT SCENARIO FOR THE INDIVIDUAL EXPOSURE ASSESSMENT**

*A. Paffi, F. Apollonio, R. Colotti, G. Aratari, Sapienza University of Rome, Italy; S. Mancini, G.A. Lovisolo, RC Casaccia ENEA, Rome, Italy; M. Liberti, Sapienza University of Rome, Italy;*

5:00 PM - 5:20 PM

**EFFECTS OF ANTENNA MOUNT ON A SPHERICAL SCANNING MEASUREMENT OF THE RADIATION EFFICIENCY OF A WIRE ANTENNA**

*T. H. Loh, National Physical Laboratory, Teddington, United Kingdom; D. Meng, National Institute of Metrology, Beijing, China; Y. Huang, University of Liverpool, United Kingdom;*

5:20 PM - 5:40 PM

**COMPLEX PERMITTIVITY DETERMINATION FROM MEASURED SCATTERING PARAMETERS OF TEM WAVEGUIDE**

*P. Savi, U. Niyazov, I. A. Maio, Politecnico di Torino, Italy;*

5:40 PM - 6:00 PM

**LABORATORY TESTS ON THE DIRECT CYLINDRICAL NF-FF TRANSFORMATION FOR VOLUMETRICAL AUTS**

*F. D'Agostino, F. Ferrara, C. Gennarelli, G. Gennarelli, R. Guerriero, M. Migliozi, University of Salerno, Italy;*

6:00 PM - 6:20 PM

**THRESHOLD BASED ALGORITHMS FOR UXO DETECTION USING MAGNETOMETRY**

*A. Zaoui, S. Mitt, A. Mesloub, Military Polytechnic School of Algiers, Algeria;*

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Tuesday, September 13, 2011, Sala Sella

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**Session 15 • ICEAA**

**ADVANCES ON SYNTHESIS AND ANALYSIS OF LARGE-SCALE ANTENNA ARRAYS**

**Organized by C. Craeye, A. Massa, G. Oliveri**

Chair: C. Craeye, A. Massa, G. Oliveri

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8:00 AM - 8:20 AM

**HIGH EFFICIENT BEAM FORMING WITH HIGH EFFICIENT PHASED ARRAY FOR MICROWAVE POWER TRANSMISSION**

*N. Shinohara, T. Ishikawa, Kyoto University, Kyoto, Japan;*

8:20 AM - 8:40 AM

**EFFICIENT SYNTHESIS OF LARGE-SCALE THINNED ARRAYS USING A DENSITY-TAPER INITIALIZED GENETIC ALGORITHM**

*W.P. du Plessis, Council for Scientific and Industrial Research, Pretoria, South Africa;*

8:40 AM - 9:00 AM

**ANALYSIS OF THE EMBRACE APERTURE ARRAY ANTENNA BY THE CHARACTERISTIC BASIS FUNCTION METHOD**

*M.J. Arts, Netherlands Institute for Radio Astronomy, Dwingeloo, Netherlands; R. Maaskant, Chalmers University of Technology, Gothenburg, Sweden; G.W. Kant, Netherlands Institute for Radio Astronomy, Dwingeloo, Netherlands;*

9:00 AM - 9:20 AM

**THINNED ARRAY SYNTHESIS INCLUDING RADIATION PATTERN DIVERSITY IN THE ELEMENTS**

*E. Rajo-Iglesias, Universidad Carlos III de Madrid, Spain; O. Quevedo-Teruel, Universidad Autónoma de Madrid, Spain;*

9:20 AM - 9:40 AM

**OPTIMAL POLARIZATION SYNTHESIS OF ARBITRARY ARRAYS SUBJECT TO POWER PATTERN CONSTRAINTS**

*B. Fuchs, A. Skrivervik, J.R. Mosig, EPFL, Lausanne, Switzerland;*

9:40 AM - 10:00 AM

**ANALYSIS AND DESIGN OF SYNTHETIC RADIOMETERS: SOME TOOLS AND COMPARISONS**

*T. Isernia, A. R. Laganà, D.A.M. Iero, A.F. Morabito, Università 'Mediterranea' di Reggio Calabria, Italy;*

10:20 AM - 10:40 AM

**NEAR-FIELD FOCUSED PLANAR MICROSTRIP ARRAYS**

*A. Buffi, A.A. Serra, P. Nepa, G. Manara, Università di Pisa, Italy; H.-T. Chou, Yuan-Ze University, Taoyuan, Taiwan;*

10:40 AM - 11:00 AM

**DETERMINISTIC AND STOCHASTIC METHODS FOR THE SYNTHESIS OF LARGE-SCALE ANTENNA ARRAYS**

*G. Buttazoni, M. Comisso, R. Vescovo, University of Trieste, Trieste, Italy;*

11:00 AM - 11:20 AM

**COMPUTATIONALLY-EFFICIENT ANALYTIC TECHNIQUES FOR LARGE ARRAY SYNTHESIS - FEASIBILITY AND REAL-IMPLEMENTATIONS**

*G. Oliveri, M. Carlin, P. Rocca, A. Massa, University of Trento, Trento, Italy;*

11:20 AM - 11:40 AM

**COMPACT REPRESENTATION OF THE EFFECTS OF MUTUAL COUPLING IN NON-REGULAR ARRAYS DEVOTED TO THE SKA TELESCOPE**

*E. de Lera Acedo, N. Razavi-Ghods, University of Cambridge, Cambridge, United Kingdom; D. Gonzalez-Ovejero, R. Sarkis, C. Craeye, Universite catholique de Louvain, Louvain-la-Neuve, Belgium;*

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Tuesday, September 13, 2011, Sala Sella

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**Session 16 • ICEAA**

**OPTICAL, SUB-MM AND MM TECHNOLOGIES**

Chair: A. Mediavilla, N. Neumann

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2:00 PM - 2:20 PM

**5TH ORDER MILLIMETER-WAVE SUBSTRATE INTEGRATED WAVEGUIDE BAND PASS FILTERS**

*N.C. Athanasopoulos, D.V. Makris, K.N. Voudouris, Technological Educational Institution of Athens, Athens, Greece;*

2:20 PM - 2:40 PM

**MILLIMETER WAVE GENERATION WITH INCREASED EFFICIENCY USING THE TEMPORAL TALBOT EFFECT**

*N. Neumann, M. Jenning, D. Plettemeier, Technische Universität Dresden, Dresden, Germany;*

2:40 PM - 3:00 PM

**ENHANCEMENT OF DUAL-BAND PLANAR INVERTED F-L-ANTENNA USING PHOTONIC BAND-GAP STRUCTURE FOR WIRELESS COMMUNICATIONS APPLICATIONS**

*D. A. Elaziz, Arab Academy for Science and Technology, Alexandria, Egypt; Y. M. Madany, Alexandria University, Alexandria, Egypt; W. A. Elkrim, Arab Academy for Science and Technology, Alexandria, Egypt;*

3:00 PM - 3:20 PM

**MILLIMETER WAVE PHASE SHIFTERS BASED ON DIELECTRIC ROD WAVEGUIDE**

*D. V. Lioubtchenko, V. Ovchinnikov, D. Chicherin, A. Räsänen, Aalto University, Finland;*

3:20 PM - 3:40 PM

**HIGH-PERFORMANCE FULL-BAND TM01 MODE CONVERTER**

*A. Mediavilla, K. Cepero, A. Tribak, University of Cantabria, Spain;*

3:40 PM - 4:00 PM

**FREQUENCY RESOLVED EXTREME BANDWIDTH SPECTRAL ANALYSIS AND DIRECTION FINDING WITH SPATIAL SPECTRAL HOLOGRAPHY**

*K. D. Merkel, S.H. Bekker, C.R. Stiffler, P.B. Sellin, S2 Corporation, Bozeman, Montana, United States; Z.W. Barber, R.K. Mohan, C.H. Harrington, W.R. Babbitt, Montana State University, Bozeman, Montana, United States;*

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Tuesday, September 13, 2011, Sala Sella

**Session 17 • IEEE APWC  
RFID TECHNOLOGIES**

Chair: A.S. Andrenko, F. Sottile

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4:20 PM - 4:40 PM

**BANDWIDTH ISSUES OF UHF RFID TRANSPONDER ANTENNAS FOR ADVANCED TIRE MONITORING**

*J. Grosinger, M. Fischer, Vienna University of Technology, Vienna, Austria;*

4:40 PM - 5:00 PM

**MINIATURE ON-CHIP SPIRAL INDUCTOR RFID TAG ANTENNA FABRICATED WITH METAL LAYER OF STANDARD CMOS PROCESS FOR BIOSENSOR APPLICATIONS**

*B. Kim, Nagoya University, Nagoya, Japan; S. Uno, Ritsumeikan University, Shiga, Japan; K. Nakazato, Nagoya University, Nagoya, Japan;*

5:00 PM - 5:20 PM

**ANALYSIS OF NEAR-FIELD COUPLING IN UHF-RFID SYSTEMS**

*A. Buffi, P. Nepa, G. Manara, Università di Pisa, Pisa, Italy;*

5:20 PM - 5:40 PM

**HYBRID WSN-RFID COOPERATIVE POSITIONING BASED ON EXTENDED KALMAN FILTER**

*Z. Xiong, Politecnico di Torino, Italy; F. Sottile, M.A. Caceres, M.A. Spirito, Istituto Superiore Mario Boella, Torino, Italy; R. Garelo, Politecnico di Torino, Italy;*

5:40 PM - 6:00 PM

**LOCATION AND TRACKING OF UHF-RFID TAGS**

*P. Nepa, F. Lombardini, A. Buffi, Università di Pisa, Italy;*

6:00 PM - 6:20 PM

**THE INFLUENCE OF MULTIPATH PROPAGATION ENVIRONMENTS ON PHASE-BASED NARROWBAND POSITIONING PRINCIPLES IN UHF RFID**

*T. Faseth, M. Winkler, H. Arthaber, G. Magerl, Vienna University of Technology, Vienna, Austria;*

6:20 PM - 6:40 PM

**TRANSPONDERS FOR MILLIMETER WAVE IDENTIFICATION**

*P. Pursula, VTT Technical Research Centre, Espoo, Finland;  
F. Donzelli, University of Bologna, Italy;*

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Tuesday, September 13, 2011, Sala Cavour

**Session18 • ICEAA  
FREQUENCY SELECTIVE SURFACES**

Chair: G. Addamo, R. Tascone

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8:00 AM - 8:20 AM

**2D INTERACTION OF A GAUSSIAN BEAM WITH A DICHROIC SURFACE FOR THE MODELING OF QUASI-OPTICAL SYSTEMS**

*K. Elis, A. Chabory, ENAC, Toulouse, France; J. Sokoloff, UPS, Toulouse, France; S. Bolioli, Onera, Toulouse, France;*

8:20 AM - 8:40 AM

**PERIODIC STRUCTURES EIGENANALYSIS INCORPORATING THE FLOQUET FIELD EXPANSION**

*S.J. Lavdas, C.S. Lavranos, G.A. Kyriacou, Democritus University of Thrace, Xanthi, Greece;*

8:40 AM - 9:00 AM

**EXPERIMENTAL RESULTS ON COMPENSATED JOINTS FOR LARGE DIELECTRIC RADOMES**

*G. Addamo, G. Virone, O.A. Peverini, R. Tascone, IEIT-CNR, Italy;  
R. Orta, Politecnico di Torino, Italy;*

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Tuesday, September 13, 2011, Sala Cavour

**Session19 • ICEAA  
PRINTED AND CONFORMAL ANTENNAS**

Chair: G. Addamo, R. Tascone

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9:00 AM - 9:20 AM

**AXISYMMETRIC HORN ANTENNA BASED ON TEM - TM - TEM TRANSFORM**

*P. Všetula, Z. Raida, Brno University of Technology, Brno, Czech Republic;*

9:20 AM - 9:40 AM

**ANTENNA ARRAY OF E-SHAPED PATCHES FOR INDOOR RECEIVING OF THE DIGITAL TV SIGNAL**

*D. Wolansky, Z. Raida, Brno University of Technology, Brno, Czech Republic;*

9:40 AM - 10:00 AM

**A COMPACT PRINTED EXTREMELY-WIDEBAND MIMO ANTENNA WITH WLAN BAND REJECTION**

*H.T. Viet, Hanoi University of Science and Technology, Hanoi, Vietnam; B.V. Ha, Politecnico di Milano, Milano, Italy;  
N.K. Kiem, D.N. Chien, Hanoi University of Technology, Hanoi, Vietnam; R.E. Zich, Politecnico di Milano, Milano, Italy;*

10:20 AM - 10:40 AM

**THE ANALYSIS AND DESIGN OF THE MODIFIED PIFA ANTENNA ON THE WEARABLE SENSOR NODES**

*Y.-C. Kan, H.-C. Chiu, P.-K. Huang, Yuan Ze University, Taiwan;*

10:40 AM - 11:00 AM

**NOVEL PLANAR WIDEBAND ANTENNAS DESIGNED BY MULTI-THREAD HYBRID OPTIMIZATION METHOD**

*Z. Lukes, J. Svobodova, Z. Raida, Brno University of Technology, Brno, Czech Republic;*

11:00 AM - 11:20 AM

**A COMPARISON BETWEEN JERUSALEM CROSS AND SQUARE PATCH FREQUENCY SELECTIVE SURFACES FOR LOW PROFILE ANTENNA APPLICATIONS**

*D. Cure, T. Weller, University of South Florida, Tampa, United States; F. Miranda, NASA Glenn Research Center, Tampa, United States;*

11:20 AM - 11:40 AM

**SHARED APERTURE DUAL BAND PRINTED ANTENNA**

*G. Colangelo, R. Vitiello, MBDA Italia Spa, Bacoli, Italy;*

11:40 AM - 12:00 PM

**SUBSTRATE INTEGRATED WAVEGUIDE RECTANGULAR RING SLOT ANTENNA**

*J. Lacik, T. Mikulasek, Brno University of Technology, Czech Republic;*

12:00 PM - 12:20 PM

**MICROSTRIP PATCH ANTENNA FED BY SUBSTRATE INTEGRATED WAVEGUIDE**

*T. Mikulasek, J. Lacik, Brno University of Technology, Czech Republic;*

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Tuesday, September 13, 2011, Sala Cavour

**Session 20 • IEEE APWC  
ADVANCES IN WIRELESS COMMUNICATIONS  
AND THEIR APPLICATIONS**

**Organized by G.N. Georgiev and M.N. Georgieva-Grosse**

Chair: G.N. Georgiev, M.N. Georgieva-Grosse

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2:00 PM - 2:20 PM

**TRANSMISSION PROPERTIES OF THE CIRCULAR WAVEGUIDES COMPLETELY OR PARTIALLY FILLED WITH AZIMUTHALLY MAGNETIZED FERRITE: REVIEW OF RECENT RESULTS**

*M. N. Georgieva-Grosse, Consulting in Physics and Computer Sciences, Gerlingen, Germany; G. N. Georgiev, University of Veliko Tirnovo, Veliko Tirnovo, Bulgaria;*

2:20 PM - 2:40 PM

**MODELING THE RADIATION CHARACTERISTICS OF PLANE WAVEGUIDE ARRAY USING THE VARIATIONAL APPROACH**

*M.I. Andriychuk, Pidstryhach Institute for Applied Problems in*

*Mechanics and Mathematics, Lviv, Ukraine; V.P. Tkachuk, Lviv  
Direction of USEPC-Ukrpost, Lviv, Ukraine;*

2:40 PM - 3:00 PM

**INVESTIGATION OF MULTI-ANTENNA MOBILE  
TERMINALS IN TERMS OF HEARING AIDS COMPATIBILITY**

*I. B. Bonev, O. Franek, G. F. Pedersen, Aalborg University,  
Aalborg, Denmark;*

3:00 PM - 3:20 PM

**THREE-DIMENSIONAL RADIO COVERAGE IN URBAN  
ENVIRONMENTS USING PHYSICAL OPTICS AND  
PHYSICAL THEORY OF DIFFRACTION**

*I. Zorbas, A. Chrysostomou, E. Papkelis, P. Frangos, National  
Technical University of Athens, Athens, Greece;  
M.N. Georgieva-Grosse, Consulting in Physics and Computer  
Sciences, Gerlingen, Germany;*

3:20 PM - 3:40 PM

**A NOVEL SOLUTION FOR DECOUPLING OF TWO CLOSELY  
SPACED ANTENNAS AT LOW FREQUENCIES**

*I. B. Bonev, O. Franek, G. F. Pedersen, Aalborg University,  
Aalborg, Denmark;*

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Tuesday, September 13, 2011, Sala Cavour

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**Session 21 • ICEAA**

**Special Session**

**HYBRID RAY, BEAM & NUMERICAL METHODS**

**Organized by G. Manara and P.H. Pathak**

Chair: G. Manara, P.H. Pathak

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4:20 PM - 4:40 PM

**MODELING WINDMILL INTERFERENCE VIA HYBRID  
PARABOLIC EQUATION AND EQUIVALENT CURRENT  
APPROXIMATION METHODS**

*A. Calo Casanova, Universidad Politécnica de Madrid, Madrid,  
Spain; P. H. Pathak, The Ohio State University, Columbus, Ohio,  
United States; M. Calvo Ramon, Universidad Politecnica de  
Madrid, Madrid, Spain;*

4:40 PM - 5:00 PM

**A UNIFORM GEOMETRICAL THEORY OF DIFFRACTION  
FOR RADIATION BY ANTENNAS ON A SMOOTH CONVEX  
IMPEDANCE SURFACE**

*P.H. Pathak, The Ohio State University, Columbus, Ohio, United  
States; K. Phaebua, King Mongkut's Institute of Technology,  
Bangkok, Thailand;*

5:00 PM - 5:20 PM

**SCATTERING BY A PENETRABLE WEDGE STRUCTURE**

*V. Daniele, G. Lombardi, Politecnico di Torino, Italy;*

5:20 PM - 5:40 PM

**HUYGENS PRINCIPLE BASED TECHNIQUE FOR  
MICROWAVE IMAGING OF OBJECTS WITH INCLUSIONS**

*N. Ghavami, D. J. Edwards, University of Oxford, United Kingdom;  
G. Tiberi, A. Monorchio, G. Manara, University of Pisa, Italy;*

5:40 PM - 6:00 PM

**FRAME DECOMPOSITION OF SCATTERED FIELDS**

*I.F. Arias Lopez, C. Letrou, Télécom SudParis, Evry, France;*

6:00 PM - 6:20 PM

**HYBRID ANALYTIC AND NUMERICAL SYNTHESIS OF PHASE-ONLY RECONFIGURABLE LINEAR ARRAYS**

*T. Isernia, University 'Mediterranea' of Reggio Calabria, Italy; A. Massa, University of Trento, Italy; A. F. Morabito, University 'Mediterranea' of Reggio Calabria, Italy; P. Rocca, University of Trento, Italy;*

6:20 PM - 6:40 PM

**PLANE WAVE SCATTERING FROM A PARTIALLY COATED AIR PLATFORM USING A NON-OVERLAPPING SURFACE INTEGRAL EQUATION DOMAIN DECOMPOSITION METHOD**

*Z. Peng, J. F. Lee, The Ohio State University, Ohio, Columbus, United States;*

6:40 PM - 7:00 PM

**HIGH FREQUENCY LOCALITY EMBODIED IN TERMS OF FRESNEL ZONE NUMBER FOR MATRIX SIZE REDUCTION IN METHOD OF MOMENTS**

*M. Ando, T.Kohama, K. Ito, Tokyo Institute of Technology, Tokyo, Japan; T. Shijo, Toshiba, Kanagawa, Japan; T. Hirano, J. Hirokawa, Tokyo Institute of Technology, Tokyo, Japan;*

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Wednesday, September 14, 2011, Sala Giolitti

**Session 22 • ICEAA**

**NUMERICAL METHODS FOR CHALLENGING MULTI-SCALE PROBLEMS (HIRF SYNTHETIC ENVIRONMENT)**

**Organized by G. Vecchi and F. Vipiana**

Chair: G. Vecchi, F. Vipiana

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8:00 AM - 8:20 AM

**MULTISCALE ELECTROMAGNETIC MODELLING OF METAL BRAIDS**

*H. Schippers, J. Verpoorte, National Aerospace Laboratory NLR, Amsterdam, Netherlands;*

8:20 AM - 8:40 AM

**NUMERICAL SIMULATION OF AERONAUTIC CABLE TOPOLOGY AND EXPERIMENTAL VALIDATION**

*M. Ridet, Onera, Toulouse, France; P. Savi, Politecnico di Torino, Italy; M. Alberti, Piaggio Aero Industries, Italy; J.-P. Parmantier, Onera, Toulouse, France; I. A. Maio, Politecnico di Torino, Italy; F. Nardone, Piaggio Aero Industries, Italy;*

8:40 AM - 9:00 AM

**MODELLING OF HIRF COUPLING ON COMPLEX CABLE ARCHITECTURES**

*J.P. Parmantier, M. Ridet, S. Bertuol, I. Junqua, Onera, Toulouse, France; C. Giraudon, C. Girard, AxesSim, Illkirch Graffenstaden, France; F. Terrade, J.P. Moreau, Dassault Aviation, St-Cloud, France;*

9:00 AM - 9:20 AM

**MODELLING OF HIGH FREQUENCY COUPLING INSIDE  
OVERSIZED STRUCTURES BY ASYMPTOTIC AND PWB  
METHODS**

*I. Junqua, J-P. Parmantier, M. Ridet, ONERA, Toulouse, France;*

9:20 AM - 9:40 AM

**MULTILEVEL DOMAIN DIFFERENTIATED ANALYSIS OF  
LARGE MULTI-SCALE STRUCTURES INSIDE THE HIRF-SE  
FRAMEWORK**

*M. A. Francavilla, F. Vipiana, Istituto Superiore Mario Boella,  
Torino, Italy; S. Arianos, G. Vecchi, Politecnico di Torino, Torino,  
Italy;*

9:40 AM - 10:00 AM

**INVESTIGATION OF FIELD COUPLING INTO A CARBON  
FIBER AIRCRAFT FUSELAGE WITH THE METHOD OF  
MOMENTS**

*A. Schröder, H.-D. Brüns, TUHH, Hamburg, Germany; G. South,  
BAES, United Kingdom; C. Schuster, TUHH, Germany;*

10:20 AM - 10:40 AM

**ADVANCED MOM TECHNIQUES INTEGRATED INTO A SIN-  
GLE CODE TO MANAGE COMPLEX HIRF ENVIRONMENTS**

*M. Bandinelli, R. Guidi, M. Bercigli, IDS Ingegneria Dei Sistemi  
S.p.A, Pisa, Italy; G. Vecchi, Politecnico di Torino, Torino, Italy;  
F. Vipiana, Istituto Superiore Mario Boella, Torino, Italy;*

10:40 AM - 11:00 AM

**AN OCT BASED MODELLING TOOL TO FAST EVALUATE  
STATISTICAL E.M. FIELD DISTRIBUTION INSIDE  
ENCLOSURE-LIKE ENVIRONMENTS**

*V. Martorelli, IDS Ingegneria Dei Sistemi S.p.A, Italy; J. Kazik, IDS  
Ingegneria Dei Sistemi (UK) Limited, United Kingdom;  
G. Galgani, F. Milani, R. Guidi, IDS Ingegneria Dei Sistemi S.p.A,  
Italy;*

11:00 AM - 11:20 AM

**VIRTUAL HIRF TESTS IN CST STUDIO SUITE™.  
A REVERBERANT ENVIRONMENT APPLICATION**

*D. Tallini, CST AG, Darmstadt, Germany;  
J.F. Dawson, I.D. Flintoft, University of York, United Kingdom;  
M. Kunze, I. Munteanu, CST AG, Darmstadt, Germany;*

11:20 AM - 11:40 AM

**SOLVING LARGE MULTI-SCALE PROBLEMS IN CST STU-  
DIO SUITE - AN AIRCRAFT APPLICATION**

*M. Kunze, CST AG, Darmstadt, Germany; Z. Reznicek, Evector,  
Kunovice, Czech Republic; I. Munteanu, CST AG, Darmstadt,  
Germany; P. Tobola, Evector, Kunovice, Czech Republic;  
F. Wolfheimer, CST AG, Darmstadt, Germany;*

11:40 AM - 12:00 PM

**AIRCRAFT EQUIPMENT MODELING USING NEURAL  
NETWORKS**

*J. Svobodová, V. Koudelka, Z. Raida, Brno University of  
Technology, Brno, Czech Republic;*

12:00 PM - 12:20 PM

**IMPEDANCE NETWORK SIMPLIFICATION: A  
COMBINATORIAL OPTIMIZATION APPROACH**

*V. Koudelka, J. Svobodova, Z. Raida, Brno University of  
Technology, Brno, Czech Republic;*

12:20 PM - 12:40 PM

**AN EFFICIENT METHOD FOR THE COMPUTATION OF EM  
FIELDS PENETRATING INTO RECTANGULAR CAVITIES  
THROUGH MULTIPLE SMALL APERTURES**

*I. Chremmos, I. Karanasiou, N. Uzunoglu, National Technical  
University of Athens, Zografou, Greece;*

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Wednesday, September 14, 2011, Sala Giolitti

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**Session 23 • IEEE APWC  
ELECTROMAGNETIC PROPAGATION**

Chair: C.G. Christodoulou, J. Simpson

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2:00 PM - 2:20 PM

**MEASUREMENTS OF BEYOND HORIZON PROPAGATION  
LOSS**

*H. Asplund, J. Medbo, J.-E. Berg, Ericsson Research, Stockholm,  
Sweden;*

2:20 PM - 2:40 PM

**MIXED-PATH TRANS-HORIZON UHF MEASUREMENTS  
FOR P.1546 PROPAGATION MODEL VERIFICATION**

*B.A. Witvliet, P.W. Wijnjina, E. van Maanen, B. Smith,  
Radiocommunications Agency Netherlands, Groningen,  
Netherlands; M.J. Bentum, R. Schiphorst, C.H. Slump, University  
of Twente, Enschede,*

2:40 PM - 3:00 PM

**STATISTICAL COHERENT SCATTERING MODEL FOR VEGETATED  
AREAS**

*L. Abalde-Lima, V. Santalla del Río, Universidad de Vigo, Vigo,  
Spain; C.G. Christodoulou, University of New Mexico,  
Albuquerque, New Mexico, United States;*

3:00 PM - 3:20 PM

**ULTRA WIDEBAND PULSE SHAPE DESIGN BY PROLATE  
SPHEROIDAL WAVE FUNCTIONS**

*D. Adhikari, Y. Sharma, C. Bhattacharya, Defence Institute of  
Advanced Technology, Pune, India;*

3:20 PM - 3:40 PM

**ANALYSIS OF TIME-REVERSAL-BASED PROPAGATION  
FOR SPATIAL FOCUSING AND MULTIPLEXING**

*F. Monsef, Andrea Cozza, SUPELEC, Gif-sur-Yvette, France;*

3:40 PM - 4:00 PM

**A COMPARISON OF CURRENT CRAIN AND ITU-R HIGH  
FREQUENCY RAIN MODELS**

*G. M. Kizer, Alcatel-Lucent, Plano, Texas, United States;*

4:20 PM - 4:40 PM

**BUILDING FACADE HOMOGENIZATION IN MULTIPLE REFLECTION MECHANISM**

*S. Mostarshedi, Y.B. Ouattara, E. Richalot, O. Picon, Université Paris-Est Marne-la-Vallée, France;*

4:40 PM - 5:00 PM

**PLANNING CRITERIA TO IMPROVE ENERGY EFFICIENCY OF MOBILE RADIO SYSTEMS**

*M. Barbiroli, University of Bologna, Italy; C. Carciofi, Fondazione Ugo Bordoni, Italy; V. Degli Esposti, University of Bologna, Italy; P. Grazioso, D. Guiducci, Fondazione Ugo Bordoni, Italy; V. Petrini, University of Bologna, Italy; G. Riva, Fondazione Ugo Bordoni, Italy;*

5:00 PM - 5:20 PM

**CAPTURING SHORT WAVES OVER LONG DISTANCES AS NONLINEAR SOLITARY WAVES**

*J. Steinhoff, University of TN Space Institute, Tullahoma, United States; S. Chitta, Flow Analysis Inc, Tullahoma, United States;*

5:20 PM - 5:40 PM

**EXTENSION OF FAST FAR FIELD ALGORITHM TO PROPAGATION OVER LOSSY DIELECTRIC TERRAIN AND BUILDINGS**

*X.D. Trinh, C. Brennan, M. Mullen, P. Bradley, Dublin City University, Ireland;*

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Wednesday, September 14, 2011, Sala Einaudi

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**Session 24 • ICEAA**

**RADAR CROSS SECTION AND RADAR IMAGING**

Chair: D.G. Johnson, P.L.E. Uslenghi

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8:00 AM - 8:20 AM

**PLANE WAVE SCATTERING ON VAN-ATTA ELECTROMAGNETIC REFLECTOR**

*T. Privalova, Southern Federal University, Rostov-on-Don, Russia; A.Y. Yukhanov, CQG Inc., Denver, Colorado, United States; Y.V. Yukhanov, Taganrog Technological Institute of Southern Federal University, Taganrog, Russia;*

8:20 AM - 8:40 AM

**TERRAIN MAPPING AT THE CM LEVEL USING A REAL-APERTURE MMW MONOPULSE RADAR**

*D.G. Johnson, M. Calleija, Australia; G.M. Brooker, E. Nettleton, University of Sydney, Sydney, Australia;*

8:40 AM - 9:00 AM

**ONE YEAR SPACEBORNE FULL POLARIMETRIC TIME-SERIES FOR MAPPING WETLAND PROCESSES**

*C. Marechal, E. Pottier, S. Allain-Bailhache, S. Meric, University of Rennes, France; L. Hubert Moy, S. Corgne, Université Haute Bretagne, France;*

9:00 AM - 9:20 AM

**CHARACTERIZATION OF THE NEAR-SUBSURFACE WITH A SINGLE FREQUENCY MULTISTATIC MICROWAVE SYSTEM**

*C. Eyraud, I. Kerroum, S. Nounouh, H. Tortel, Institut Fresnel, Marseille, France;*

9:20 AM - 9:40 AM

**FAST IMAGING OF VEGETATION ON GPUS BASED ON NON-UNIFORM FFTS**

*A. Capozzoli, C. Curcio, I. Iudice, A. Liseno, S. Savarese, Università di Napoli Federico II, Italy;*

9:40 AM - 10:00 AM

**HIGH FREQUENCY DIFFRACTION OF A ELECTROMAGNETIC PLANE WAVE BY AN IMPERFECTLY CONDUCTING RECTANGULAR CYLINDER. II (GRAZING INCIDENCE)**

*A. D. Rawlins*

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Wednesday, September 14, 2011, Sala Einaudi

**Session 25 • IEEE APWC**

**WIDEBAND AND MULTIBAND ANTENNA TECHNOLOGIES**

**Organized by H. Nakano**

Chair: H. Nakano, C. Phongcharoenpanich

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10:20 AM - 10:40 AM

**BETOL AND BEFOL ANTENNAS**

*H. Nakano, Y. Oishi, Y. Ogino, J. Yamauchi, Hosei University, Tokyo, Japan;*

10:40 AM - 11:00 AM

**REVIEW OF THE DESIGN TECHNIQUES FOR COMPACT DIGITAL TV RECEIVING ANTENNAS**

*C.-F. Huang, Tatung University, Taipei, Taiwan;*

11:00 AM - 11:20 AM

**ON THE EFFECT OF GROUND PLANE SIZE TO WIDEBAND SHORTING-WALL PROBE-FED PATCH ANTENNAS**

*K. Tong, University College London, London, United Kingdom;  
K.F. Lee, University of Mississippi, Mississippi, United States;  
K.M. Luk, City University of Hong Kong, Hong Kong, China;*

11:20 AM - 11:40 AM

**A FOLDED FILM ANTENNA FOR DIGITAL TERRESTRIAL TELEVISION RECEPTION**

*N. Guan, H. Tayama, R. Hosono, H. Furuya, Fujikura Ltd., Sakura, Japan;*

11:40 AM - 12:00 PM

**DESIGN OF BROADBAND CIRCULARLY POLARIZED APERTURE ANTENNAS USING L-SHAPED BENT PROBE**

*T. Fukusako, R. Joseph, Kumamoto University, Kumamoto, Japan;*

12:00 PM - 12:20 PM

**WIDENED BANDWIDTH OF A METAMATERIAL ZOR PATCH ANTENNA WITH A SHORT-CIRCUITED RING**

*S.-G. Mok, S. Kahng, University of Incheon, Incheon, South Korea;  
Y. Kim, Inha Technical college, Incheon, South Korea;*

2:00 PM - 2:20 PM

**ARCHIMEDEAN SPIRAL ANTENNA OVER A PEC REFLECTOR WITH A THIN MAGNETIC SHEET**

*M. Tanabe, Y. Masuda, Toshiba Corporation, Japan;*

2:20 PM - 2:40 PM

**DUAL-BAND CONICAL-BEAM ANTENNA USING 3D MONOPOLE WITH SYMMETRICAL SLOT ON THE GROUND PLANE**

*C. Phongcharoenpanich, E. Khoomwong, King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand;*

2:40 PM - 3:00 PM

**PLANAR DUAL-BAND SPIRAL MONOPOLE ANTENNA**

*A.S. Andrenko, Fujitsu Laboratories LTD., Yokosuka, Japan;*

3:00 PM - 3:20 PM

**COMPACT HIGH GAIN RECEPTION ANTENNA FOR DIGITAL TERRESTRIAL TELEVISION**

*M. Taguchi, Nagasaki University, Nagasaki, Japan;*

3:20 PM - 3:40 PM

**MULTIBAND MICROSTRIP ANTENNAS FED BY AN L-PROBE**

*Y. Kimura, Y. Shinohe, R. Chayono, M. Haneishi, Saitama University, Saitama, Japan;*

3:40 PM - 4:00 PM

**GROUND PLANE EFFECTS AND MEASUREMENTS OF PORTABLE PLANAR BROADBAND ANTENNAS**

*Yi Huang, L. Yang, S. Boyes, C. Ping, University of Liverpool, Liverpool, United Kingdom; L. Tian, National Physical Lab, Teddington, United Kingdom;*

4:20 PM - 4:40 PM

**DUAL BAND PRINTED MONOPOLE SLOT ANTENNA WITH L-SLOT AND ARM-SLOT COMBINATION FOR WLAN APPLICATION**

*M. Z. M. Nor, S. K. A. Rahim, T. A. Rahman, Universiti Teknologi Malaysia, Johor, Malaysia;*

4:40 PM - 5:00 PM

**IN-DEPTH EXAMINATION OF A 3-LAYER PHASE SHIFTING SURFACE (PSS) AND ITS USE IN A THIN FRESNEL LENS DESIGN**

*N. Gagnon, A. Petosa, Communications Research Centre, Ottawa, Ontario, Canada; D.A. McNamara, University of Ottawa, Ottawa, Ontario, Canada;*

5:00 PM - 5:20 PM

**FREQUENCY RECONFIGURABLE ANTENNA WITH MEMS SWITCHES FOR MOBILE TERMINALS**

*T. Yamagajo, Association of Super-Advanced Electronics Technologies, Kanagawa, Japan; Y. Koga, Fujitsu Laboratories Ltd., Kanagawa, Japan;*

Wednesday, September 14, 2011, Sala Sella

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**Session 26 • ICEAA  
ANTENNAS AND ARRAYS**

Chair: O.B. Jacobs, G. Virone

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8:00 AM - 8:20 AM

**A PHASED ARRAY UNIT FOR ADAPTIVE BACKHAULING IN WIMAX RELAY NETWORKS**

*N.C. Athanasopoulos, I.K. Petropoulos, K.N. Voudouris,  
Technological Educational Institution of Athens, Athens,  
Greece;*

8:20 AM - 8:40 AM

**ANALYTICAL EVALUATION OF THE EFFICIENCY IMPROVEMENT OF SHAPED OVER CLASSICAL OFFSET DUAL-REFLECTOR ANTENNAS INCLUDING SUB-REFLECTOR DIFFRACTION**

*D.I.L. de Villiers, Stellenbosch University, Stellenbosch, South Africa;  
R. Lehmensiek, EMSS Antennas (Pty) Ltd, Stellenbosch, South Africa;*

8:40 AM - 9:00 AM

**QUAD RIDGE HORN ANTENNA WITH ELLIPTICALLY SHAPED SIDEWALLS**

*O.B. Jacobs, J.W. Odendaal, J. Joubert, University of Pretoria, Pretoria, South Africa;*

9:00 AM - 9:20 AM

**ADAPTIVE BEAM-FORMING IN TIME DOMAIN**

*P. Kadlec, M. Stumpf, Z. Raida, Brno University of Technology, Brno, Czech Republic;*

9:20 AM - 9:40 AM

**FAST POWER SYNTHESIS FOR RECONFIGURABLE ARRAYS WITH DYNAMIC RANGE RATIO REDUCTION**

*M. Comisso, R. Vescovo, University of Trieste, Trieste, Italy;*

9:40 AM - 10:00 AM

**BROADBAND ARRAY ELEMENT FOR THE SKA LOW-FREQUENCY APERTURE ARRAY**

*G. Virone, G. Addamo, O. A. Peverini, R. Tascone, IEIT-CNR, Italy;*

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Wednesday, September 14, 2011, Sala Sella

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**Session 27 • ICEAA  
Special Session  
MATHEMATICAL ADVANCES IN ELECTROMAGNETICS  
Organized by J.M. Arnold and P.D. Smith**

Chair: J.M. Arnold, P.D. Smith

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10:20 AM - 10:40 AM

**TIME DOMAIN DISCRETE GREEN'S FUNCTIONS FOR WAVE EQUATIONS ON SIMPLICIAL NETWORKS**

*J. M. Arnold, University of Glasgow, United Kingdom;*

10:40 AM - 11:00 AM

**EXACT RADIATION FROM A PROLATE SPHEROIDAL ANTENNA COATED WITH ISOREFRACTIVE AND ANTI-ISOREFRACTIVE CONFOCAL LAYERS**

*A.N. Askarpour, University of Tehran, Tehran, Iran;  
P.L.E. Uslenghi, University of Illinois at Chicago, Chicago, Illinois, United States;*

11:00 AM - 11:20 AM

**ON THE SCATTERING BY A QUARTER-PLANE**

*V. Daniele, G. Lombardi, Politecnico di Torino, Italy;*

11:20 AM - 11:40 AM

**ELECTROMAGNETIC WAVE PROPAGATION IN A TIME-VARIANT MEDIUM: A STATE-SPACE APPROACH VIA THE SPATIAL FOURIER DOMAIN**

*R.F. Remis, Delft University of Technology, Delft, Netherlands;*

11:40 AM - 12:00 PM

**INVESTIGATION OF HIGHER PROPAGATING MODES IN SHIELDED TRANSMISSION LINES WITH ARBITRARY PROFILE CONDUCTORS: RIGOROUS APPROACH**

*G. Safonova, E.D. Vinogradova, Macquarie University, Sydney, Australia;*

12:00 PM - 12:20 PM

**TM-POLARIZED PLANE WAVE SCATTERING BY AN ECCENTRICALLY LOADED SLIT PEC CYLINDER**

*M.P. Ioannidou, Alexander Technological Educational Institute of Thessaloniki, Thessaloniki, Greece; I.O. Vardiambasis, Technological Educational Institute of Crete, Chania, Greece; A.P. Moneda, Alexander Technological Educational Institute of Thessaloniki, Thessaloniki, Greece;*

2:00 PM - 2:20 PM

**ANALYTICAL REGULARIZATION ANALYSIS OF ELECTROMAGNETIC WAVE DIFFRACTION BY A PEC HOLLOW CYLINDRICAL STRIP**

*H. Yiğit, F. Dikmen, GIT Electronics Engineering Department, Gebze, Turkey; Y. A. Tuchkin, GIT Electronics Engineering Department, Gebze, Turkey / The Institute of Radiophysics and Electronics, Kharkov, Ukraine;*

2:20 PM - 2:40 PM

**ON THE ANALYTIC CALCULATION OF MULTIPLE INTEGRALS IN ELECTROMAGNETICS**

*L. Knockaert, Ghent University, Dept. Information Technology, Belgium;*

2:40 PM - 3:00 PM

**SCATTERING BY PERIODIC DIELECTRIC MEDIA VIA A SPECTRAL DOMAIN-INTEGRAL EQUATION: MAINTAINING EFFICIENCY AND ACCURACY**

*M.C. van Beurden, Eindhoven University of Technology, Eindhoven, Netherlands;*

3:00 PM - 3:20 PM

**STABLE SELF-CONSISTENT GREEN'S FUNCTION DIAKOPTICS WITHOUT SPURIOUS RECURRENCES**

*B.P. de Hon, Eindhoven University of Technology, Netherlands;  
J.M. Arnold, University of Glasgow, United Kingdom;*

3:20 PM - 3:40 PM

**INVERSE MEDIUM PROBLEMS FOR SPHERICAL SCATTERERS IN THE LOW-FREQUENCY REGION**

*N. L. Tsitsas, National Technical University of Athens, Athens, Greece;*

3:40 PM - 4:00 PM

**EFFICIENT CALCULATION OF FOURIER COEFFICIENTS OF GREEN'S FUNCTIONS ON SMOOTH CONTOUR**

*Yu.A. Tuchkin, O.A. Suvorova, GIT, Turkey;*

4:20 PM - 4:40 PM

**TIME-DOMAIN SIMULATION OF ELECTROMAGNETIC SCATTERING IN AXIALLY-SYMMETRICAL OPEN RESONATORS**

*O. Shafalyuk, P.D. Smith, Macquarie University, North Ryde, Australia;*

4:40 PM - 5:00 PM

**ON EIGENFREQUENCES OF AN OPEN RESONATOR: RIGOROUS APPROACH**

*A. Shafalyuk, E.D. Vinogradova, Macquarie University, North Ryde, Australia;*

5:00 PM - 5:20 PM

**DIFFRACTION OF PLANE WAVE BY FINITE ENSEMBLE OF CYLINDRICAL CAVITIES OF ARBITRARY SHAPE**

*E. D. Vinogradova, Macquarie University, North Ryde, Australia;*

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Wednesday, September 14, 2011, Sala Cavour

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**Session 28 • ICEAA**

**ELECTROMAGNETIC APPLICATIONS TO NANOTECHNOLOGY**

Chair: V. Metlushko, G. Slepyan

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8:00 AM - 8:20 AM

**THE INVESTIGATION OF READ LAYERS DAMAGE DURING THE ELECTROMAGNETIC CURING PROCESS OF HEAD GIMBAL ASSEMBLY**

*S. Aksornnium, O. Watcharakitchakorn, R. Silapunt, King Mongkut's University of Technology Thonburi, Bangkok, Thailand;*

8:20 AM - 8:40 AM

**ASYMPTOTIC EXPRESSIONS FOR GUIDED TM AND TE WAVES IN A GRAPHENE PARALLEL-PLATE WAVEGUIDE**

*B.-I. Wu, Air Force Research Laboratory, Hanscom AFB, Massachusetts, United States;*

8:40 AM - 9:00 AM

**X-BAND CHARACTERIZATION OF MULTI-WALLED CARBON NANOTUBE FILMS**

*A. Katsounaros, K.Z. Rajab, Y. Hao, Queen Mary University of London, London, United Kingdom;  
M. Mann, W.I. Milne, Cambridge University, Cambridge, United*

9:00 AM - 9:20 AM

**DESIGN OF A SWITCHABLE HIGH IMPEDANCE SURFACE BASED ON SINGLE-LAYER DOPED GRAPHENE FOR THZ APPLICATION**

*Y. Huang, L.-S. Wu, J. Mao, Shanghai Jiaotong University, Shanghai, China;*

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Wednesday, September 14, 2011, Sala Cavour

**Session 29 • ICEAA  
MATERIALS AND METAMATERIALS**

Chair: V. Metlushko, G. Slepian

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9:20 AM - 9:40 AM

**HOMOGENIZATION OF AN ENSEMBLE OF SWISS ROLLS BY MEANS OF THE MLFMA**

*B. Michiels, I. Bogaert, J. Fostier, D. De Zutter, Ghent University, Ghent, Belgium;*

9:40 AM - 10:00 AM

**TEMPERATURE DEPENDENCE OF COMPLEX PERMITTIVITY FOR POLYIMIDE FILM USED IN FLEXIBLE PRINTED CIRCUIT IN MICROWAVE BAND**

*A. Tsuchiya, H. Sugama, N. Hidaka, Kanagawa Industrial Technology Center, Kanagawa, Japan;  
K. Miyamoto, S. Tsujino, O. Hashimoto, Aoyama Gakuin University, Kanagawa, Japan;*

10:20 AM - 10:40 AM

**NOVEL TECHNIQUE FOR HIGH REFRACTIVE INDEX MANIFESTATION**

*A. Sonsilphong, N. Wongkasem, Khon Kaen University, KhonKaen, Thailand;*

10:40 AM - 11:00 AM

**CHIRALITY CONTROL IN METAMATERIALS BY GEOMETRICAL MANIPULATION**

*W. Panpradit, A. Sonsilphong, N. Wongkasem, Khon Kaen University, Khon Kaen, Thailand;*

11:00 AM - 11:20 AM

**INVESTIGATION OF BANDWIDTH, EFFICIENCY, AND QUALITY FACTOR FOR CIRCULAR PATCH ANTENNAS WITH MAGNETO-DIELECTRIC SUBSTRATE**

*B. Nour, O. Breinbjerg, Technical University of Denmark, Kongens Lyngby, Denmark;*

11:20 AM - 11:40 AM

**ELECTRICALLY SMALL TRIPLE-BAND SRR ANTENNA**

*S. Zhu, K. L. Ford, A. Tennant, R. J. Langley, University of Sheffield, United Kingdom;*

11:40 AM - 12:00 PM

**ACTIVE LEARNING METHOD FOR DESIGNING  
MINIATURIZED WAVEGUIDE FILTERS LOADED BY  
BROADSIDE-COUPLED SPLIT RING RESONATORS**

*P. Rezaee, Christian-Albrechts\_University of Kiel, Kiel, Germany;  
N. Nasr Esfahani, Technical University of Hamburg-Harburg,  
Hamburg, Germany; R. Knoechel, Christian-  
Albrechts\_University of Kiel, Kiel, Germany; M. Tayarani, Iran  
University of Science and Technology, Tehran, Iran;*

12:00 PM - 12:20 PM

**MINIATURIZED COAXIAL CYLINDRICAL CAVITY FILTERS  
BASED ON SUB-WAVELENGTH METAMATERIAL LOADED  
RESONATOR**

*N. Nasr Esfahani, Technische Universität Hamburg-Harburg,  
Germany; P. Rezaee, Christian-Albrechts-University of Kiel,  
Germany; K. Schünemann, Technische Universität Hamburg-  
Harburg, Germany; R. Knöchel, Christian-Albrechts-University  
of Kiel, Germany; M. Tayarani, Iran University of Science and  
Technology, Iran;*

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Wednesday, September 14, 2011, Sala Cavour

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**Session 30 • ICEAA  
FIELDS AND WAVES**

**Organized by L. Klinkenbusch and K. Langenberg**

Chair: L. Klinkenbusch, K. Langenberg

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2:00 PM - 2:20 PM

**SHIELDING EFFECTIVENESS FOR TRANSIENT  
NEAR-FIELD SOURCES**

*C. Moeller, DAUtec GmbH, Merkuring, Germany;  
L.B. Klinkenbusch, University of Kiel, Kiel, Germany;*

2:20 PM - 2:40 PM

**ON A NEW STABLE MODELING OF DYADIC GREEN'S  
FUNCTIONS OF ELECTRICALLY UNIAXIAL  
PLANAR-LAYERED MEDIA**

*Y. Zhong, National University of Singapore, Singapore;  
M. Lambert, D. Lesselier, Supelec, Gif-sur-Yvette, France;  
X. Chen, National University of Singapore, Singapore;*

2:40 PM - 3:00 PM

**CHARACTERIZATION OF THE ENERGY RADIATION PAT-  
TERN OF A TRANSIENT ANTENNA ARRAY: EIGEN-ANALY-  
SIS AND BOUNDS**

*A. Shlivinski, Ben-Gurion University of the Negev, Beer-Sheva,  
Israel;*

3:00 PM - 3:20 PM

**ABOUT MODELING ASPECTS FOR THE SIMULATION OF  
MAGNETIC FORCE MICROSCOPES**

*T. Preisner, W. Mathis, Leibniz Universität Hannover, Hannover,  
Germany;*

3:20 PM - 3:40 PM

**ON THE EXTRAORDINARY TRANSMISSION THROUGH SUB-WAVELENGTH APERTURES IN PERFECTLY CONDUCTING SHEETS**

*M. Gustafsson, D. Sjöberg, I. Vakili, Lund University, Sweden;*

3:40 PM - 4:00 PM

**A CLOSE LOOK AT CREEPING WAVES**

*K.J. Langenberg, University of Kassel, Kassel, Germany;*

4:20 PM - 4:40 PM

**INTEGRATED HYBRID SCATTERING ANALYSIS WITHIN SYSTEM SIMULATIONS WITH FOCUS ON RCS AND WIND TURBINES**

*G. Greving, W.-D. Biermann, R. Mundt, NAVCOM Consult, Marbach, Germany;*

4:40 PM - 5:00 PM

**FIT-TD SIMULATION OF NON-LINEAR MATERIALS FOR SECOND HARMONIC GENERATION IN PERIODICALLY POLED LITHIUMNIOBATE WAVEGUIDES**

*T. Glahn, Universität Paderborn, Paderborn, Germany;*

*E. Chiavaccini, CST AG, Darmstadt, Germany;*

*R. Schuhmann, Universität Paderborn, Paderborn, Germany;*

5:00 PM - 5:20 PM

**LOW-RANK PROPERTIES IN THE HYBRID FINITE ELEMENT-BOUNDARY INTEGRAL METHOD**

*P. Demarcke, D. Vande Ginste, H. Rogier, Ghent University, Ghent, Belgium;*

5:20 PM - 5:40 PM

**GPU-ACCELERATED TIME DOMAIN ELECTROMAGNETIC FIELD SIMULATIONS FOR NUMERICAL EMC TESTING APPLICATIONS**

*C. Cimala, M. Clemens, N. Gödel, J. Streckert, M. Zang, Bergische Universität Wuppertal, Wuppertal, Germany;*

*F. Wolfheimer, Computer Simulation Technology AG, Darmstadt, Germany;*

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Thursday, September 15, 2011, Sala Giolitti

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**Session 31 • ICEAA**

**INTEGRAL EQUATIONS AND HYBRID METHODS**

Chair: C. Brennan, D.B. Davidson, J.-F. Lee, Y. Shao

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8:20 AM - 8:40 AM

**TOWARDS AN ASYNCHRONOUS, SCALABLE MLFMA FOR THREE-DIMENSIONAL ELECTROMAGNETIC PROBLEMS**

*B. Michiels, J. Fostier, J. Peeters, I. Bogaert, D. De Zutter, Ghent University, Ghent, Belgium;*

8:40 AM - 9:00 AM

**DOMAIN DECOMPOSITION TECHNIQUES FOR THE SCATTERING BY PARTLY BOR OBJECTS - APPLICATION TO THE "ANTENNA-RADOME" MODELING**

*J.-P. Martinaud, S. Nosal, G. Salin, Thales Systèmes Aéroportés, Elancourt, France;*

9:00 AM - 9:20 AM

**APPROXIMATE CLOSED-FORM SOLUTION OF THE ELECTRIC FIELD DUE TO HED WITHIN FINITELY CONDUCTIVE EARTH**

*V. Arnautovski-Toseva, Blaise Pascal University, Clermont Ferrand, France;*

9:20 AM - 9:40 AM

**MODELING OF ELECTROMAGNETIC WAVES SCATTERING FROM SEA SURFACE USING HIGHER-ORDER MOMENT METHOD (HO-MOM) AND NURBS PATCH**

*R. Khairi, A. Coatanhay, A. Khenchaf, ENSTA Bretagne, Brest, France;*

9:40 AM - 10:00 AM

**LOW FREQUENCY SCALING OF THE MIXED MFIE FOR SCATTERERS WITH A NON-SIMPLY CONNECTED SURFACE**

*I. Bogaert, K. Cools, Ghent University, Belgium;  
F.P. Andriulli, TELECOM Bretagne, France;  
D. De Zutter, Ghent University, Belgium;*

10:20 AM - 10:40 AM

**THE METHOD OF EQUIVALENT DIPOLE MOMENTS (MEDM) COMBINED WITH CBFM FOR THE FAST AND ACCURATE SOLUTION OF DIELECTRIC SCATTERING PROBLEMS**

*M. Naeem, R. Maaskant, Chalmers University of Technology, Sweden; G.W. Kant, Netherlands Institute for Radio Astronomy, Netherlands; P.-S. Kildal, Chalmers University of Technology, Sweden; R. Mittra, Pennsylvania State University, United States;*

10:40 AM - 11:00 AM

**A BURIED OBJECT APPROACH (BOA) FOR THE SCATTERING OF ELECTROMAGNETIC WAVES FROM 2D ROUGH SURFACES**

*Y. Altuncu, Nigde University, Nigde, Turkey;  
R. Temel, Cappadocia Vocational College, Nevsehir, Turkey;*

11:00 AM - 11:20 AM

**A MULTILEVEL HIERARCHICAL PRECONDITIONER FOR THE ELECTRIC FIELD INTEGRAL EQUATION**

*M.J. Bluck, N.E. Cinosi, S.P. Walker, London, Imperial College, United Kingdom;*

11:20 AM - 11:40 AM

**EIGENVALUE ANALYSIS OF PLANAR OR CURVED SHIELDED OR OPEN PRINTED TRANSMISSION LINES LOADED WITH FULL TENSOR ANISOTROPIC MATERIALS**

*C. S. Lavranos, S. J. Lavdas, G.A. Kyriacou, Democritus University of Thrace, Xanthi, Greece;*

11:40 AM - 12:00 PM

**ACCELERATED FORWARD BACKWARD ITERATIVE SOLUTION FOR SCATTERING FROM RANDOMLY ROUGH LOSSY SURFACES.**

*X.D. Trinh, C. Brennan, M. Mullen, P. Bradley, Dublin City University, Ireland;*

**Session 32 • ICEAA  
FINITE METHODS**

Chair: C. Brennan, D.B. Davidson, J.-F. Lee, Y. Shao

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2:00 PM - 2:20 PM

**SUBCELL MODELING OF A PLASMONIC DRUDE NANOSPHERE**

*A.H. Panaretos, R.E. Diaz, Arizona State University, Tempe, Arizona, United States;*

2:20 PM - 2:40 PM

**NEW THIN COATED WIRE FORMALISM FOR FDTD METHOD**

*C. Guiffaut, University of Limoges, Limoges, France; P. Boudy, THALES/GERAC, France; N. Rouvrais, THALES/GERAC, France; B. Ben'Mhamed, University of Limoges, Limoges, France; B. Pecqueux, CEA Gramat, Gramat, France; A. Reineix, University of Limoges, Limoges, France;*

2:40 PM - 3:00 PM

**ENHANCEMENT TE<sub>10</sub> TRANSMISSION OF X-BAND GUIDED WAVES STRUCTURE USING MODE EXTRACTOR-CONVERTER**

*H. M. Elkamchouchi, Y. M. Madany, A. F. Miligy, Alexandria University, Alexandria, Egypt;*

3:00 PM 3:20 PM

**OPTIMUM TWO CELLS TRANSITION WAVEGUIDE CHANNEL OF MODE EXTRACTOR-CONVERTER STRUCTURE FOR X-BAND RADAR ANTENNA APPLICATIONS**

*H. M. Elkamchouchi, Y. M. Madany, A. F. Miligy, Alexandria University, Alexandria, Egypt;*

3:20 PM - 3:40 PM

**A PROPOSED PERFECTLY MATCHED STRATIFIED MEDIUM FDTD TFSF SOURCED BY INHOMOGENEOUS PLANE WAVES**

*T. Tan, A. Taflove, V. Backman, Northwestern University, Evanston, Illinois, United States;*

3:40 PM - 4:00 PM

**EFFICIENT CALCULATION OF NEAR FIELDS IN THE FDTD METHOD**

*O. Franek, Aalborg University, Denmark;*

4:20 PM - 4:40 PM

**HIGH ORDER EXPLICIT CONVOLUTION FREE TIME-DOMAIN FINITE ELEMENT PML IMPLEMENTATION**

*N. Marais, D. B. Davidson, E&E Dept, Universty of Stellenbosch, Stellenbosch, South Africa;*

4:40 PM - 5:00 PM

**HYBRID OPENCL-MPI PARALLELIZATION OF THE FDTD METHOD**

*T.P. Stefanski, Swiss Federal Institute of Technology, Zurich, Switzerland; N. Chavannes, SPEAG Software R&D, Zurich, Switzerland; N. Kuster, Swiss Federal Institute of Technology, Zurich, Switzerland;*

**Session 33 • IEEE APWC  
COGNITIVE RADIO AND WIRELESS NETWORKS**

Chair: D. Erricolo, K. Kagoshima

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8:00 AM - 8:20 AM

**2X2 SWITCH MATRIX FOR A PROTOTYPE WIMAX RELAY STATION**

*N.C. Athanasopoulos, I.K. Petropoulos, K.N. Voudouris, Technological Educational Institution of Athens, Athens, Greece;*

8:20 AM - 8:40 AM

**WSN-BASED EARLY ALERT SYSTEM FOR PREVENTING WILDLIFE-VEHICLE COLLISIONS IN ALPS REGIONS**

*F. Viani, P. Rocca, L. Lizzi, University of Trento, Trento, Italy; M. Rocca, Associazione Cacciatori Trentini, Trento, Italy; G. Benedetti, Provincia Autonoma di Trento, Trento, Italy; A. Massa, University of Trento, Trento, Italy;*

8:40 AM - 9:00 AM

**ENHANCEMENT OF THE FREQUENCY CHARACTERISTICS OF A DECOUPLING AND MATCHING FEEDING NETWORK FOR A MIMO ANTENNA 163**

*K. Kagoshima, S. Takeda, A. Kagaya, K. Nishimura, Ibaraki University, Ibaraki, Japan;*

9:00 AM - 9:20 AM

**MULTI-BAND DIRECTION-SENSITIVE COGNITIVE RADIO NODE**

*N. Murtaza, A. Krah, M. Grimm, A. Heuberger, R. Thomä, M.A. Hein, Ilmenau University of Technology, Ilmenau, Germany;*

9:20 AM - 9:40 AM

**DUAL-BAND FAN-BEAM ARRAY ANTENNA FOR GSM900, DECT AND 3G WIRELESS APPLICATIONS**

*M. Naghshvarianjahromi, A. Falahati, Iran University of Science and Technology, Tehran, Iran; M.Nejati-Jahromi, Islamic Azad University south Tehran Branch, Tehran, Iran;*

9:40 AM - 10:00 AM

**CHANNEL CHARACTERISTICS ANALYSIS OF THE DUAL CIRCULAR POLARIZED LAND MOBILE SATELLITE MIMO RADIO CHANNEL**

*U. M. Ekpe, CCSR, T. W. C. Brown, B. G. Evans, University of Surrey, Guildford, United Kingdom;*

10:20 AM - 10:40 AM

**LOW COST DGPS WIRELESS NETWORK**

*C. Lucianaz, O. Rorato, M. Allegretti, Politecnico di Torino, Italy; M. Mamino, Envisens Technologies, Italy; M. Roggero, Politecnico di Torino, Italy; F. Diotri, Fondazione Montagna Sicura, Courmayeur, Italy;*

10:40 AM - 11:00 AM

**COMPARISON OF SPECTRUM SENSING METHODS FOR COGNITIVE RADIO UNDER LOW SNR**

*R. Garelo, Y.F. Jia, Politecnico di Torino, Torino, Italy;*

11:00 AM - 11:20 AM

**STEERABLE DUAL-BAND PLANAR MICROSTRIP PHASED ARRAY ANTENNA FOR 3G AND 4G WIRELESS**

*M Ali Soliman, National Telecommunication Regulatory Authority, Egypt; W. Swelam, Egyptian Armed Forces, Egypt; Ali Gomaa, (3) Shobraa Faculty of Engineering, Benha University, Cairo, Egypt, Egypt; T.E. Taha, Faculty of Electronic Engineering, Menoufia University, Menouf, Egypt, Egypt;*

11:20 AM - 11:40 AM

**INDOOR ON-BODY CHANNEL MEASUREMENTS AT 900 MHZ**

*J. Grosinger, M. Fischer, Vienna University of Technology, Austria;*

11:40 AM - 12:00 PM

**PERFORMANCE EVALUATION OF AN UNIFIED WIMAX - DVB-S NETWORK ARCHITECTURE**

*E.D. Puschita, T.P. Palade, I. Sime, Technical University of Cluj-Napoca, Romania;*

12:00 PM - 12:20 PM

**WHITEFI: THE USAGE OF UHF FREQUENCIES FOR BIDI-RECTIONAL SERVICES IN MOUNTAINOUS SCENARIOS**

*A. Masini, G. Mazzini, University of Ferrara, Italy;  
A. Ghittino, M. Maglioli, N. Di Maio, CSP, Torino, Italy;  
G. Riva, Fondazione Ugo Bordoni, Roma, Italy;*

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Thursday, September 15, 2011, Sala Einaudi

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**Session 34 • IEEE APWC  
CHANNEL MODELING**

Chair: A.V. Bosisio, E. Plouhinec

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2:00 PM - 2:20 PM

**SNR ANALYSIS OF A NOISY-CHANNEL MODEL FOR A CAPACITIVELY-COUPLED PERSONAL-AREA NETWORK**

*A. Sasaki, T. Ishihara, N. Shibata, R. Kawano, H. Morimura, NTT Microsystem Integration Laboratories, Kanagawa, Japan;  
M. Shinagawa, Hosei University, Tokyo, Japan;*

2:20 PM - 2:40 PM

**TROPOSCATTER EFFECTS PREDICTION: RAY-TRACING MODELING FOR RADIO LINKS**

*A.V. Bosisio, IEIT-CNR, Milano, Italy;*

2:40 PM - 3:00 PM

**CHOICE OF MAXIMUM NUMBER OF INTERNAL REFLECTIONS FOR TRANSMISSION THROUGH A LOSSLESS DIELECTRIC SLAB**

*E. Plouhinec, Centre de Recherche des Ecoles de Coëtquidan, France; B. Uguen, IETR UMR CNRS 6164, Rennes, France;*

3:00 PM - 3:20 PM

**ON HF COMMUNICATION LINK PARAMETER ESTIMATION IN THE BALTIC REGION**

*E. Lossmann, M-A. Meister, U. Madar, Tallinn University of Technology, Estonia;*

3:20 PM - 3:40 PM

**VALIDATION OF TUNED COST-231 HATA MODEL USING SOME URBAN BASE STATIONS DATA IN WESTERN INDIA**

*C. Dalela, JSS Academy of Technical Education, Noida, India; M.V.S.N. Prasad, National Physical Laboratory, New Delhi, India; P.K. Dalela, C-DOT, New Delhi, India;*

3:40 PM - 4:00 PM

**EFFECTS OF LOCATION AND ROOM HEIGHT ON ULTRA WIDEBAND PROPAGATION AROUND THE HUMAN BODY**

*M. Koiwai, T. Kobayashi, Tokyo Denki University, Japan;*

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Thursday, September 15, 2011, Sala Einaudi

**Session 35 • IEEE APWC  
ANTENNAS FOR WIRELESS APPLICATIONS**

Chair: C. Ullrich, G. Virone

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4:20 PM - 4:40 PM

**FACTORIZATION OF THE ANTENNA CORRELATION COEFFICIENT FOR IMPROVED PERFORMANCE ASSESSMENT**

*P Hallbjörner, SP Technical Research Institute of Sweden, Borås, Sweden; P Lindberg, Laird Technologies, Kista, Sweden;*

4:40 PM - 5:00 PM

**ON THE IMPORTANCE OF OBSERVATION ANGLES IN AUTOMOTIVE ANTENNA MEASUREMENTS**

*C. Ullrich, AUDI AG, Ingolstadt, Germany;*

5:00 PM - 5:20 PM

**A DUAL-BAND CIRCULARLY-POLARISED LEAKY-WAVE ANTENNA FOR MOBILE KA-BAND SATELLITE COMMUNICATIONS**

*A. Krauss, H. Bayer, R. Stephan, M.A. Hein, Ilmenau University of Technology, Ilmenau, Germany;*

5:20 PM - 5:40 PM

**SMALL-SCALE PROTOTYPE OF A KU-BAND PHASED ARRAY FOR MOBILE SATELLITE COMMUNICATIONS**

*R. Baggen, IMST, Kamp-Lintfort, Germany; S. Vaccaro, D. Llorens del Rio, J. Padilla, JAST, Lausanne, Switzerland;*

5:40 PM - 6:00 PM

**12-DOF INITIAL STATES ENHANCEMENT OF MAGNETIC SENSOR IN SMART GUIDANCE SYSTEMS APPLICATIONS**

*H. M. Elkamchouchi, Y. M. Madany, Y. A. Fayad, Alexandria University, Alexandria, Egypt;*

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Thursday, September 15, 2011, Sala Sella

**Session 36 • ICEAA  
HIGH-POWER ELECTROMAGNETICS**

**Organized by D.V. Giri**

Chair: D.V. Giri, I. Kohlberg

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8:20 AM - 8:40 AM

**DR. CARL E. BAUM'S CONTRIBUTIONS TO OUR UNDERSTANDING OF THE LIGHTNING RETURN STROKE**

*R.L. Gardner, Consultant, Alexandria, Virginia, United States;*

8:40 AM - 9:00 AM

**ELECTROMAGNETIC THEORY OF IRIS DETECTION**

*I. Kohlberg, Kohlberg Associates Inc, Reston, Virginia, United States; H. Szu, US Army NVESD, Fort Belvoir, Virginia, United States;*

9:00 AM - 9:20 AM

**DESIGN OF COMPACT HELICAL ANTENNA AT 200 MH**

*M. Nyffeler, armasuisse, Spiez, Switzerland; D.V. Giri, ProTech, Alamo, California, United States;*

9:20 AM - 9:40 AM

**DESIGN AND OPTIMIZATION OF MESOBAND RADIATORS USING CHAIN PARAMETERS**

*F. Vega, F. Rachidi, N. Mora, Ecole Polytechnique Federal de Lausanne, Switzerland; B. Daout, M. Sallin, Montena EMC S.A, Rossens, Switzerland;*

9:40 AM - 10:00 AM

**TESTING THE ELECTROMAGNETIC VULNERABILITY OF ELECTRICALLY INITIATED DEVICES (EID) AT HIGH-POWER DAMPED-SINUSOID IRRADIATION**

*F. Sonnemann, Diehl BGT Defence GmbH & CoKG, Röthenbach, Germany;*

10:20 AM - 10:40 AM

**HIGH FREQUENCY ELECTROMAGNETIC FIELD COUPLING TO SMALL ANTENNAS IN A CYLINDRICAL RESONATOR**

*S.V. Tkachenko, J. Nitsch, Otto-von-Guericke-University Magdeburg, Magdeburg, Germany;  
F. Sonnemann, Diehl BGT Defence, Röthenbachh, Germany;  
H.-J. Scheibe, M. Magdowski, R. Vick, Otto-von-Guericke-University Magdeburg, Magdeburg, Germany;*

10:40 AM - 11:00 AM

**PEAK POWER GAIN IN TIME DOMAIN OF IMPULSE RADIATING ANTENNAS (IRAS)**

*D. V. Giri, Pro-Tech, Alamo, California, United States;*

11:00 AM - 11:20 AM

**RESPONSE OF CANONICAL PORTS TO A HIGH POWER ELECTROMAGNETIC EXCITATION**

*N. Mora, F. Vega, F. Rachidi, Swiss Federal Institute of Technology, Lausanne, Switzerland;  
M. Nyffeler, Armasuisse, Thun, Switzerland;*

11:20 AM - 11:40 AM

**PREDICTIVE MODELING OF HIGH-POWER ELECTROMAGNETIC EFFECTS ON ELECTRONICS**

*T. Clarke, A. Taylor, N. Estep, S. Yakura, D. Brumit, Air Force Research Laboratory, Kirtland AFB, New Mexico, United States;  
D. Dietz, University of New Mexico, Albuquerque, New Mexico, United States; S. Hemmady, TechFlow Inc., Albuquerque, New Mexico, United States; J. Duffey, Science Applications International Corporation, Albuquerque, New Mexico, United States;*

11:40 AM - 12:00 PM

**EXTENSION OF THE HYBRID MODELING TECHNIQUE TO THE SUSCEPTIBILITY OF COMPLEX INFRASTRUCTURE CIRCUITS AND SYSTEMS**

*R.L. Gardner, Consultant, Alexandria, United States; D.C. Stoudt, Naval Surface Warfare Center, Dahlgren, United States;*

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Thursday, September 15, 2011, Sala Sella

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**Session 37 • ICEAA**

**ELECTROMAGNETIC ANALYSIS OF PACKAGES AND BOARDS**

**Organized by F. Canavero**

Chair: F. Canavero, T. Sudo

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2:00 PM - 2:20 PM

**GPU-BASED ACCELERATION OF THE TIME-DOMAIN ELECTRICAL FULL-WAVE SOLVERS IN PI/SI/EMI SIMULATION**

*H. Asai, Shizuoka University, Japan;*

2:20 PM - 2:40 PM

**MODELING METHODS FOR POWER/GROUND PLANE STRUCTURES IN ELECTRONIC PACKAGES**

*J. Y. Choi, M. Swaminathan, Georgia Institute of Technology, Atlanta, United States;*

2:40 PM - 3:00 PM

**RECENT DEVELOPMENTS OF VIA AND RETURN CURRENT PATH MODELING**

*S. Müller, X. Duan, R. Rimolo-Donadio, H.-D. Brüns, C. Schuster, Technische Universität Hamburg-Harburg, Germany;*

3:00 PM - 3:20 PM

**MODELING THE ELECTROMAGNETIC BEHAVIOR OF PARALLEL-PLANE INTERCONNECTIONS**

*M. Leone, M. Friedrich, OvG-University of Magdeburg, Germany;*

3:20 PM - 3:40 PM

**SIGNAL AND POWER INTEGRITY ANALYSIS OF TSV-BASED 3D IC**

*J.S. Pak, H. Kim, J. Cho, J. Kim, K. Kim, KAIST, South Korea;  
J. Lee, H. Lee, K. Park, Hynix Semiconductor, South Korea;  
J. Kim, KAIST, South Korea;*

3:40 PM - 4:00 PM

**BROADBAND PASSIVE RLGC(F) MODELING FOR ON-CHIP INTERCONNECT DESIGN**

*D. Vande Ginste, D. Deschrijver, T. Demeester, T. Dhaene, D. De Zutter, Ghent University, Belgium;*

4:20 PM - 4:40 PM

**PARAMETERIZED SENSITIVITY ANALYSIS OF MULTI-PORT SYSTEMS BY MEANS OF THE PARTIAL ELEMENT EQUIVALENT CIRCUIT METHOD AND INTERPOLATION SCHEMES**

*L. De Camillis, F. Ferranti, Ghent University, Belgium;  
G. Antonini, University of L'Aquila, Italy;  
D. Vande Ginste, D. De Zutter, Ghent University, Belgium;*

4:40 PM - 5:00 PM

**SUSCEPTIBILITY OF PCBs INCLUDING NON LINEAR ELEMENTS: A TIME-DOMAIN APPROACH**

*F. Torres, C. Guiffaut, A. Reineix, Université de Limoges, France;*

5:00 PM - 5:20 PM

**CHARACTERIZATION AND MODELING OF THE ELECTROMAGNETIC BEHAVIOR OF ICS AND PACKAGES**

*M. Bencivinni, F. Camarda, Micron Semiconductor Italia, Italy;  
D. Capriglione, A. G. Chiariello, University of Cassino, Italy;  
G. Fusillo, A. Girardi, R. Izzi, Micron Semiconductor Italia, Italy;  
A. Maffucci, University of Cassino, Italy;  
I. Martines, Micron Semiconductor Italia, Italy;*

5:20 PM - 5:40 PM

**EXPERIMENTS AND SIMULATION OF ELECTROMAGNETIC RADIATION DUE TO POWER BUS STRUCTURE IN A PRINTED CIRCUIT BOARD**

*T. Sudo, Shibaura Institute of Technology, Tokyo, Japan;*

5:40 PM - 6:00 PM

**CHARACTERIZATION OF THE INDUCED EFFECTS ON ELECTRONIC BOARDS PLACED IN METAL ENCLOSURES WITH LOADED APERTURES**

*R. Araneo, "Sapienza" University of Rome, Italy;*

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Thursday, September 15, 2011, Sala Cavour

**Session 38 • ICEAA  
INVERSE SCATTERING AND REMOTE SENSING**

Chair: R. Pierri, R. Solimene

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8:00 AM - 8:20 AM

**GPR MODELLING APPLIED TO VERTICAL AND HORIZONTAL RESOLUTION OF BURIED OBJECTS**

*T. Ziani, D. Teguig, M. Amine Takkouche, EMP, Algiers, Algeria;  
X. Dérobert, IFSTTAR, Nantes, France;  
M. Benslama, Constantine University, Algeria;*

8:20 AM - 8:40 AM

**IMAGING SPARSE SCATTERERS THROUGH BAYESIAN COMPRESSIVE SENSING METHODS**

*G. Oliveri, L. Poli, A. Massa, University of Trento, Trento, Italy;*

8:40 AM - 9:00 AM

**FAULT DETECTION IN GRID SCATTERING BY A TIME-REVERSAL MUSIC APPROACH**

*A. Baratonio, G. Leone, R. Pierri, R. Solimene, Seconda Università di Napoli, Aversa, Italy;*

9:00 AM - 9:20 AM

**RETRIEVING HALF-SPACE FRESNEL COEFFICIENTS BY MULTISTATIC GPR DATA**

*A. D'Alterio, R. Solimene, R. Pierri, Seconda Università di Napoli, Aversa, Italy;*

9:20 AM - 9:40 AM

**EFFECTS OF POLARIZATION ON MICROWAVE IMAGING RECONSTRUCTIONS**

*C. Eyraud, J.-M. Geffrin, A. Litman, Institut Fresnel, Marseille, France; O. Merchiers, R. Vaillon, Université de Lyon, France;*

9:40 AM - 10:00 AM

**IDENTIFICATION OF THIN COATINGS USING ASYMPTOTIC MODELS**

*O. Ozdemir, Istanbul Technical University, Turkey; H. Haddar, Ecole Polytechnique, Palaiseau, France; E. Boldaz, Istanbul Technical University, Turkey;*

10:20 AM - 10:40 AM

**MUSIC ALGORITHM APPLIED TO ADVANCED EMI SENSORS DATA FOR UXO CLASSIFICATION**

*D.P. Economou, National Technical University of Athens, Greece; F. Shubitidze, Dartmouth College, United States; B.E. Barrowes, ERDC Cold Regions Research and Engineering Laboratory, United States; N.K. Uzunoglu, National Technical University of Athens, Greece;*

10:40 AM - 11:00 AM

**IDENTIFICATION, TRACKING, VALIDATION AND FORECAST OF LOCAL HIGH RESOLUTION PRECIPITATION PATTERNS OBSERVED THROUGH X-BAND MICRO RADARS**

*S. Paoletta, Politecnico di Torino, Italy; A. Prato, Università di Torino, Italy; S. Turso, R. Notarpietro, S. Bertoldo, M. Cucca, G. Perona, M. Gabella, Politecnico di Torino, Italy; S. Ferrarese, R. Richiardone, Università di Torino, Italy;*

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Thursday, September 15, 2011, Sala Cavour

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**Session 39 • ICEAA**

**PROPAGATION MODELS FOR VLF TO SHF EM WAVES**

**Organized by J. Simpson**

Chair: C. Carrano, J. Simpson

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11:00 AM - 11:20 AM

**EFFICIENT AND ACCURATE URBAN OUTDOOR RADIO WAVE PROPAGATION**

*A. Schmitz, L. Kobbelt, RWTH Aachen University, Aachen, Germany;*

11:20 AM - 11:40 AM

**SPLIT-STEP SOLUTION OF THE 4TH MOMENT EQUATION FOR PROPAGATION THROUGH INTENSE IONOSPHERIC DISTURBANCES**

*C. S. Carrano, Boston College, Massachusetts, United States; C. L. Rino, Rino Consulting, Menlo Park, California, United States;*

11:40 AM - 12:00 PM

**FULL-WAVE METHOD OF CALCULATION OF ELECTROMAGNETIC FIELDS IN STRATIFIED MEDIA**

*N.G. Lehtinen, T.F. Bell, Stanford University, Stanford, CA, United States; U.S. Inan, Stanford University, Stanford, CA, United States; Koc University, Istanbul, Turkey;*

12:00 PM - 12:20 PM

**MULTIPHYSICS MODELING OF VLF - HF PROPAGATION  
IN THE EARTH-IONOSPHERE SYSTEM FOR  
COMMUNICATIONS, SURVEILLANCE, AND NAVIGATION**

*J. Simpson, J. Niu, University of New Mexico, Albuquerque,  
United States;*

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Thursday, September 15, 2011, Sala Cavour

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**Session 40 • ICEAA  
ELECTRODYNAMICS OF NANOWIRES AND NANOTUBES**

**Organized by G. Slepyan**

Chair: G. Miano, G. Slepyan

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2:00 PM - 2:20 PM

**ELECTRODYNAMICS OF MULTIWALL CARBON  
NANOTUBE INTERCONNECTS**

*C. Forestiere, G. Miano, Università degli Studi di Napoli  
Federico II, Italy; A.G. Chiariello, A. Maffucci, Università  
degli Studi di Cassino, Italy; S. Maksimenko, G. Slepyan,  
Belarus State University, Minsk, Belarus;*

2:20 PM - 2:40 PM

**ANALYSIS OF SEMICONDUCTOR NANOWIRE ARRAYS  
FOR PHOTOVOLTAICS**

*B. Witzigmann, S. Yu, University of Kassel, Kassel, Germany;  
J. Kupec, ETH Zurich, Zurich, Switzerland;*

2:40 PM - 3:00 PM

**MODELING SCULPTURED THIN FILMS AS PLATFORMS  
FOR SURFACE-PLASMONIC-POLARITONIC OPTICAL  
SENSING**

*T.G. Mackay, University of Edinburgh, Edinburgh, United  
Kingdom; A. Lakhtakia, Pennsylvania State University,  
University Park, Pennsylvania, United States;*

3:00 PM - 3:20 PM

**LINEAR AUGMENTED CYLINDRICAL WAVE METHOD FOR  
ELECTRONIC STRUCTURE OF PERFECT AND IMPURITY  
SINGLE-WALL, DOUBLE-WALL, AND EMBEDDED  
NANOTUBES**

*P. N. D'yachkov, Russian Academy of Sciences, Moscow, Russian  
Federation;*

3:20 PM - 3:40 PM

**EFFECTIVE CONDUCTIVITY OF A COMPOSITE MATERIAL  
CONTAINING CARBON NANOTUBES IN THE GHZ AND  
THZ FREQUENCY RANGES**

*G.Y. Slepyan, A.M. Nemilentsau, M.V. Shuba, P.P. Kuzhir,  
A. Paddubskaya, D. Bychanok, A. Plushch, S.A. Maksimenko,  
Belarus State University, Minsk, Belarus;  
P.N. D'yachkov, Russian Academy of Sciences, Moscow, Russia;  
K.N. Lapko, Belarusian State University, Minsk, Belarus;  
A.G. Kurennya, A.N. Okotrub, Nikolaev Institute of Inorganic  
Chemistry, Novosibirsk, Russia; A. Lakhtakia, Pennsylvania  
State University, University Park, Pennsylvania, United States;*

Thursday, September 15, 2011, Sala Cavour

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**Session 41 • ICEAA  
ELECTROMAGNETIC APPLICATIONS TO BIOMEDICINE**

Chair: D. Pouchè, O.H. Talcoth

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4:20 PM - 4:40 PM

**MONOLITHIC MULTI-SCALE MODELING OF MR-INDUCED  
PACEMAKER LEAD HEATING**

*O. Talcoth, T. Rylander, H.S. Lui, M. Persson,  
Chalmers University of Technology, Goteborg, Sweden;*

4:40 PM - 5:00 PM

**NUMERICAL EVALUATION OF THE ELECTRIC FIELD  
INDUCED IN A CUBIC PHANTOM BY DIFFERENT  
ANTENNAS AT 2.45 GHZ**

*A. Paffi, M. Liberti, F. Sammali, Sapienza University of Rome,  
Italy; R. Stefanelli, D. Trincherò, Politecnico di Torino, Italy;  
F. Apollonio, Sapienza University of Rome, Italy;*

5:00 PM - 5:20 PM

**A MULTI-GPU ACCELERATION FOR 3D IMAGING OF THE  
PROSTATE**

*E. A. Attardo, A. Borsic, R. J. Halter, Dartmouth College,  
Hanover, United States;*

5:20 PM - 5:40 PM

**INVESTIGATION OF BODY SHAPE VARIATIONS EFFECT  
ON THE ULTRA WIDEBAND ON-BODY RADIO PROPAGA-  
TION CHANNEL**

*M. M. Khan, Q. H. Abbasi, A. Alomainy, Y. Hao, Queen Mary  
University of London, United Kingdom;*

5:40 PM - 6:00 PM

**REACTIVE ELECTROMAGNETIC FIELDS IN BIOLOGICAL  
TISSUES**

*D. Pouchè, B. Dondjio, TU Berlin, Germany;*

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Thursday, September 15, 2011, Sala Stampa

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**Session 42 • IEEE APWC  
ULTRA WIDEBAND BODY AREA NETWORKS  
AND MEDICAL APPLICATIONS**

**Organized by E. Pancera and W. Wiesbeck**

Chair: W. Wiesbeck

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8:20 AM - 8:40 AM

**ULTRA WIDEBAND MEDICAL APPLICATIONS  
AN OVERVIEW**

*W. Wiesbeck, E. Pancera, Karlsruhe Institute of Technology,  
Karlsruhe, Germany;*

8:40 AM - 9:00 AM

**UWB IN MEDICAL DIAGNOSTICS AND TREATMENT**

*M. Persson, Chalmers University of Technology, Gothenburg,  
Sweden;*

9:00 AM - 9:20 AM

**CHARACTERIZATION OF ELECTROMAGNETIC PROPAGATION EFFECTS IN THE HUMAN HEAD AND ITS APPLICATION TO DEEP BRAIN IMPLANTS**

*M. Grimm, D. Manteuffel, University of Kiel, Kiel, Germany;*

9:20 AM - 9:40 AM

**SYNTHESIS AND ANALYSIS OF A MONOPOLE RADIATOR FOR UWB BODY AREA NETWORKS**

*L. Lizzi, G. Oliveri, F. Viani, A. Massa, University of Trento, Trento, Italy;*

9:40 AM - 10:00 AM

**COMPACT PERMITTIVITY-MATCHED ULTRA-WIDEBAND ANTENNAS FOR BIOMEDICAL IMAGING**

*F. Scotto di Clemente, M. A. Hein, R. Stephan, Ilmenau University of Technology, Ilmenau, Germany;*

10:20 AM - 10:40 AM

**MONITORING OF HUMAN CARDIO-PULMONARY ACTIVITY BY MULTI-CHANNEL UWB RADAR**

*O. Kosch, F. Thiel, Physikalisch-Technische Bundesanstalt, Berlin, Germany; F. Scotto di Clemente, M.A. Hein, Ilmenau University of Technology, Ilmenau, Germany; F. Seifert, Physikalisch-Technische Bundesanstalt, Berlin,*

10:40 AM - 11:00 AM

**IMPROVING LINK QUALITY OF UWB COMMUNICATION LINKS BY MEANS OF PSWF-BASIS PURSUIT DENOISING**

*W. Dullaert, H. Rogier, L. De Camillis, T. Dhaene, Ghent University, Ghent, Belgium;*

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Friday, September 16, 2011, Sala Giolitti

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**Session 43 • IEEE APWC  
TOPICS IN PHYSICAL LAYER COMMUNICATIONS  
Organized by D. Tuninetti**

Chair: D. Tuninetti

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8:20 AM - 8:40 AM

**ACHIEVING LARGE SPECTRAL EFFICIENCY WITH TDD AND NOT-SO-MANY BASE-STATION ANTENNAS**

*H. Huh, University of Southern California, Los Angeles, United States; H. C. Papadopoulos, S. A. Ramprasad, Docomo USA Labs, Palo Alto, United States; G. Caire, University of Southern California, Los Angeles, United States;*

8:40 AM - 9:00 AM

**THE FINAL FRONTIER FOR CELLULAR COMMUNICATION SYSTEMS**

*A Lozano, Universitat Pompeu Fabra, Barcelona, Spain;*

9:00 AM - 9:20 AM

**GENERALIZED DELAY-SECURITY-THROUGHPUT TRADE-OFFS IN MOBILE AD-HOC NETWORKS**

*S. Shintre, Universidade do Porto, Portugal; L. Sassatelli, Université de Nice Sophia Antipolis, France; J. Barros, Universidade do Porto, Portugal;*

9:20 AM - 9:40 AM

**MULTIUSER DETECTION FOR CONTINUOUS PHASE CDMA**

*R.R. Müller, Norwegian University of Science and Technology, Trondheim, Norway;*

9:40 AM - 10:00 AM

**COGNITIVE CHANNELS WITH OBLIVION CONSTRAINTS**

*D. Tuninetti, University of Illinois at Chicago, United States;*

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Friday, September 16, 2011, Sala Giolitti

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**Session 44 • IEEE APWC**

**Special Session**

**ANTENNAS WITH FSS, AMC AND PERIODIC STRUCTURES**

**Organized by J.C. Vardaxoglou**

Chair: R. Tascone, J.C. Vardaxoglou

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10:20 AM - 10:40 AM

**INDEPENDENT MULTIBAND TUNING USING AN ACTIVE AMC**

*R.J. Langley, H-J. Lee, K. L. Ford, University of Sheffield, Sheffield, United Kingdom;*

10:40 AM - 11:00 AM

**THREE-WAVE SCATTERING BY FINITE NONLINEAR PHOTONIC CRYSTAL**

*O.V. Shramkova, A.G. Schuchinsky, Queen's University Belfast, Belfast, United Kingdom;*

11:00 AM - 11:20 AM

**A PASSIVELY SWITCHED DUAL-BAND CIRCULAR FSS SLOT ARRAY**

*P.S. Taylor, J.C. Batchelor, E.A. Parker, University of Kent, Canterbury, United Kingdom;*

11:20 AM - 11:40 AM

**MICROWAVE ANTENNAS AND HETEROGENEOUS SUBSTRATES USING NANOMATERIAL FABRICATION TECHNIQUES**

*C. C. Njoku, W. G. Whittow, J. C. Vardaxoglou, Loughborough University, United Kingdom;*

11:40 AM - 12:00 PM

**ADVANCES IN LOW-PROFILE FABRY-PEROT CAVITY BASE STATION ANTENNAS USING PASSIVE PERIODIC SURFACES**

*A. P. Feresidis, J. C. Vardaxoglou, Loughborough University, Loughborough, United Kingdom;*  
*G. K. Palikaras, AceWTL, Harlow, United Kingdom;*

**Session 45 • ICEAA**

**EMC/EMI/EMP**

Chair: F. Canavero, D. Trincherio

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8:00 AM - 8:20 AM

**NATURE-INSPIRED ULTRA-WIDEBAND ARRAY SYNTHESIS TECHNIQUES**

*D.H. Werner, M.D. Gregory, P.L. Werner, The Pennsylvania State University, University Park, Pennsylvania, United States;*

8:20 AM - 8:40 AM

**PRACTICAL DEFINITION OF INTERFACE BARRIER EFFECTIVE SHIELDING**

*P.S. Van der Merwe, A.J. Otto, H.C. Reader, Stellenbosch University, Stellenbosch, South Africa;*

8:40 AM - 9:00 AM

**AN EXPERIMENTAL STUDY ON REDUCTION OF MUTUAL COUPLING BETWEEN CLOSELY PLACED MSAS USING WAVE ABSORBER**

*K. Takahashi, T. Yasuzumi, Aoyama Gakuin University, Kanagawa, Japan;  
N. Sano, Yokogawa Denshikiki CO. Ltd., Kanagawa, Japan;  
O. Hashimoto, Aoyama Gakuin University, Kanagawa, Japan;*

9:00 AM - 9:20 AM

**A TIME-DOMAIN EMI MEASUREMENT SYSTEM UP TO 26 GHZ WITH AMPLITUDE PROBABILITY DISTRIBUTION**

*C. Hoffmann, H.H. Slim, P. Russer, Technische Universität München, Munich, Germany;*

9:20 AM - 9:40 AM

**AUTOMATED EXTRACTION OF CONDUCTED EMISSION RELEVANT PARAMETERS IN THE CASE OF A DC MOTOR**

*Á. Leibinger, M. Giese, Robert Bosch GmbH, Reutlingen, Germany; R. Weigel, University of Erlangen-Nürnberg, Erlangen, Germany;*

9:40 AM - 10:00 AM

**OPTIMUM DESIGN OF WAVE ABSORBERS USING FOAMED POLYIMIDE CONTAINING CARBON BLACK BASED ON GENETIC ALGORITHM**

*S. Takano, T. Yasuzumi, Aoyama Gakuin University, Japan;  
K. Moriuchi, T. Sakata, T. Ozaki, I.S.T Corporation, Japan;  
O. Hashimoto, Aoyama Gakuin University, Japan;*

10:20 AM - 10:40 AM

**ANALYTICAL PREDICTION OF THE EFFECT OF CONDUCTIVE PLANES ON EMC FILTER STRUCTURES**

*M. Schmidt, Friedrich-Alexander-University of Erlangen Nuremberg, Erlangen, Germany; T. Fischer, Siemens Audiologische Technik GmbH, Erlangen, Germany; M. Albach, Friedrich-Alexander-University of Erlangen Nuremberg, Erlangen, Germany;*

10:40 AM - 11:00 AM

**APERTURE SIZE EFFECT ON THE SUSCEPTIBILITY OF A PCB INSIDE AN ENCLOSURE**

*S. Abadpour, P. Dehkhoda, H. R. Karami, R. Moini, Amirkabir University of Technology, Tehran, Iran;*

11:00 AM - 11:20 AM

**ANALYSIS OF SHIELDING EFFECTIVENESS OF A RECTANGULAR ENCLOSURE WITH APERTURE IRRADIATED BY PLANE WAVE USING THE INTERMEDIATE CIRCUIT MODEL**

*F. Tahar Belkacem, Electromagnetic Systems Laboratory, EMP, Algiers, Algeria; A.-G. Boutar, Electromagnetic Systems Laboratory, Algiers, Algeria; M. Bensetti, ESIGELEC, Saint Etienne du Rouvray, France; M. Laour, D. Moussaoui, Electromagnetic Systems Laboratory, Algiers, Algeria;*

11:20 AM - 11:40 AM

**OPTIMIZATION OF THE GTEM CELL WIDEBAND TERMINATION**

*D. Poughè, O. Sandstede, G. Mönich, Technische Universitat Berlin, Germany;*

11:40 AM - 12:00 PM

**MICROWAVE MEASUREMENTS OF A GTEM EXCITATION SECTOR: STRATEGIES FOR APEX CHARACTERIZATION**

*H.X. Araujo, L.C. Kretly, University of Campinas, Brazil;*

12:00 PM - 12:20 PM

**EXPOSURE ASSESSMENT TO WIFI ACCESS POINTS BY SIMULATIONS AND MEASUREMENTS**

*M. Elsayed, A.F.Abdelazid, M. Hasna, Electrical Engineering Department, Doha, Qatar; D. Trincherò, Politecnico di Torino, Torino, Italy;*

**Short Course on  
ADVANCED DESIGN AND ANALYSIS OF RFID ANTENNAS  
8:20-12:20**

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**Instructor**

*Andrey S. Andrenko*

*YRP R&D Center, Fujitsu Laboratories LTD, Yokosuka, Japan*

Radio frequency identification (RFID) technology employs short-range wireless communications to read certain digital information stored in a tag attached to an object being tracked. An RFID system consists of one or more tags with IC chips, and a read/write (R/W) device incorporating an R/W antenna as its main component. Tags come in many sizes and shapes, but they are usually small and lightweight, and are typically used for wireless data communication with R/W devices at distances ranging from a few millimeters to several meters.

This short course will cover all the technical aspects of UHF band RFID antenna design and applications. It will begin with a detailed introduction of the basic principles of wireless communications as incorporated in real-life RFID systems. Next, the performance requirements of various R/W antennas for RFID systems would be presented. To provide simultaneous signal reception from arbitrarily oriented linearly polarized tags an R/W antenna is typically designed to be circularly polarized (CP), with its polarization characterized by the axial ratio (AR), although it is possible to use linearly polarized (LP) R/W antennas in some RFID systems. Several designs of CP and LP R/W antennas, as well as RFID tag antennas will be presented and their implementation in various RFID systems will be described. Some of the topics to be covered are listed below:

- Design and optimization of high-gain single feed RHCP and LP parasitic R/W patch antenna.
- Implementation of LP 2-element dipole-on-glass R/W antenna for show case applications.
- Design and system integration of printed-on-glass RHCP R/W gate patch antenna.
- Environmental effects on the performance of high-gain RHCP R/W patch antenna located outdoors.
- Simulation and design of custom-made RFID tag antennas and their implementation.

Copies of presentation slides will be provided.

**Short Course on  
A HYBRID DOMAIN DECOMPOSITION BASED NUMERICAL  
AND RAY TECHNIQUE FOR ANALYSIS/SYNTHESIS OF LARGE  
CONFORMAL PHASED ARRAYS ON COMPLEX PLATFORMS  
8:20-12:20**

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**Instructors**

*Jin-Fa Lee and Prabhakar H. Pathak  
The Ohio State University, Columbus, Ohio, USA*

This course will present a brief overview of hybrid domain decomposition (DD) based numerical and ray methods for solving electrically large and multi-scale electromagnetic (EM) wave problems. The focus will be on the analysis/synthesis of large complex phased arrays placed conformally on a larger complex platform. Specifically, non-conformal DD methods will be reviewed and revolutionary breakthroughs will be discussed that make it possible to accurately solve large EM problems, with even billions of finite element and boundary unknowns. Hybrid combination of finite element (FE) method with the boundary integral (BI) method can be performed without introducing any artificial gaps between regions pertaining to the two methods. The application of DD-FE-BI for treating large complex arrays on complex platforms will be described. In case of synthesis of conformal arrays on large complex platforms, it is also possible, in most applications, to further improve the efficiency of this hybrid approach by first obtaining an initial field distribution in the smoothly convex array aperture (that is flush to the otherwise metallic platform) via the uniform geometrical theory of diffraction (UTD) ray approach, to achieve a given direction of scan. Thus, UTD concepts will also be briefly reviewed. An iterative optimization procedure may be implemented in which the UTD is utilized for repeatedly calculating, in a relatively efficient manner, the array aperture radiation pattern at each iteration, and in the presence of the platform, till the desired goal (for beam direction, polarization, sidelobe levels, etc.) is reached. The required feed excitation at the antenna elements of the array, for producing the UTD based array aperture distribution, can then be calculated via the DD based FE-BI numerical method which can be made to either take into account the entire array and the platform simultaneously, or to alternatively treat only the local array platform geometry via the DD-FE-BI for increased efficiency and then use the resulting aperture distribution within the UTD approach to find the final array radiation pattern. If necessary, an additional small set of iterations can always be performed at the end to further enhance the array performance via the DD-FE-BI-UTD hybridization.

Copies of presentation slides will be provided.





