

FINAL PROGRAMME

Cambridge, UK
March 21-23, 2007



2007 IEEE International Workshop
on Antenna Technology:
Small & Smart Antennas
Metamaterials and
Applications

iWAT 2007
S²AMA

Small & Smart Antennas, Metamaterials and Applications



iWAT'07 Conference Programme

| Time | Tue, 20 th *• | | Wed, 21 st *• | Thu, 22 nd • | Fri, 23 rd • |
|---------------|--------------------------|--------------|-------------------------------------|---------------------------|------------------------------|
| 9:00 | Short course | | Opening and Keynote session | Oral Session 4 | Oral Session 8 |
| - | | | Tea break | Tea break | Tea break |
| 12:30 | | | Oral Session 1 | Oral Session 5 | Oral Session 9 |
| 12:30 - 14:30 | Lunch | | Lunch Poster Session 1 | Lunch Poster Session 2 | Lunch Poster Session 3 |
| 14:30 | Short course | Registration | Oral Session 2 | Oral Session 6 | Oral Session 10 |
| - | | | Tea break | Tea break | Tea break |
| 18:00 | | | Oral Session 3 | Oral Session 7 | Social event Science tour |
| 18:30 - 20:30 | Reception | | Social event King's college tour | Conference dinner | |

* The registration desk available (9:00– 18:00 of 20th and 8:30 – 9:00 of 21st March 2007)

• **Information desk available**



Opening and Keynote Session, Wednesday 21 March 2007

Opening & Keynote Session – 09:00-10:40

Chairs: Prof. Zhipeng Wu, University of Manchester, UK;

Dr. Zhinong Ying, Sony Ericsson Mobile Communication AB, Sweden

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- 09:00 Opening Greeting (General Chairs)
Xiadodong Chen¹ and Thomas Bolin²
¹*Queen Mary, University of London*
²*Sony Ericsson Mobile Communication AB, Sweden*
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- 09:10 **Modern Small Antenna Engineering**
Kyohei Fujimoto
University of Tsukuba, Japan
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- 09:40 **A Critical Look at the Performance Enhancement of Small Antennas using Metamaterials**
Raj Mittra
Penn State University, USA
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- 10:10 **On Compact Multiple Antenna Systems in a Random Environment**
Jørgen B Andersen¹ and Buon Kiong Lau²
¹*Aalborg University*
²*Lund University*
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Oral Sessions, Wednesday 21 March 2007 – 11:00-12:30

Session 1 – 11:00-12:30

Smart and Meta-antennas

Chairs: Prof. Anthony Brown, University of Manchester; Dr. Ralf Ehmman, CST, Germany

- 11:00 Metamaterial-Inspired Electrically-Small Antenna Systems (*INVITED*)
Richard W. Ziolkowski, Aycan Erentok
University of Arizona, USA
- 11:20 Periodic Materials and Printed Structures for Miniature Antennas (*INVITED*)
John L. Volakis, Henk Verweij, Kubilay Sertel
The Ohio State University, USA
- 11:40 The Relationship between Bandwidth and Quality Factor for Electrically Small Antennas Exhibiting Closely Spaced Resonances (*INVITED*)
Steven R Best¹, Howard R Stuart²
¹MITRE, USA; ²Lucent Technologies, USA
- 12:00 Steerable ultra-thin directive antenna from a metamaterial-based subwavelength cavity
Abdelwaheb Ourir, Shah Nawaz Burokur, André de Lustrac
Institut d'Electronique Fondamentale-Université Paris-Sud, France
- 12:15 Mutual coupling investigation of two wideband dipole antennas on EBG ground plane
Wei Zhang, Peter Hall
University of Birmingham



Oral Sessions Wednesday 21 March 2007 – 14:30-18:00

Session 2 - 14:30-16:00

Mobile antennas and interaction with human-body (EC-ACE Special Session)

Chairs: Dr. Cyril Luxey, University of Nice-Sophia Antipolis, France; Prof. Toru Uno, Tokyo University of Agricultural Technology, Japan

Session 3 – 16:30-18:00

mm-wave and novel antennas

Chairs: Dr. Clemens Icheln, Finland; Dr. Qiubo Ye, Communications Research Centre, Canada

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| 14:30 | Antennas Challenges for Body Centric Communications (INVITED) <u>Peter Hall</u> University of Birmingham, UK | 16:30 | New Technology Millimetrewave Antennas (INVITED) <u>Clive Parini</u> , Yoonjae Lee, Yang Hao Queen Mary, University of London, UK |
| 14:50 | Personal antennas for mobile networks (INVITED) <u>Richard Langley</u> , Shaozhen Zhu University of Sheffield, UK | 16:50 | Integrated Microwave and Millimeter Wave Antennas based on SIW and HMSIW Technology (INVITED) <u>Hong Wei</u> , Bing Liu, Guo Q. Luo, Qing H. Lai, Jun F. Xu, Zhang C. Hao, Fan F. He, Xiao X. Yin Southeast University, China |
| 15:10 | A Wideband Study of the Bandwidth, SAR and Radiation Efficiency of Mobile Terminal Antenna Structures Juha Tapio Villanen, Juho Poutanen, Clemens Icheln, Pertti Vainikainen Helsinki University of Technology, Finland | 17:10 | Polarisation-Reconfigurable Patch Antenna Fabien Ferrero ¹ , Cyril Luxey ¹ , Gilles Jacquemod ¹ , Robert Staraj ¹ , Vincent Fusco ² ¹ University of Nice, France ² Queens University of Belfast, UK |
| 15:25 | A multi-band, dual-antenna and antenna interface module system for mobile phones Kevin Boyle ¹ , Zidong Liu ² , Tao Huang ² , Yanling Sun ³ , Alexander Simin ³ , Erwin Spits ³ , Onno Kuijken ³ , Thomas Roedle ³ ¹ Philips Research Laboratories; ² NXP Semiconductors, UK; ³ NXP Semiconductors, The Netherlands | 17:25 | Low-Profile Rolled Planar Antenna With Wide Bandwidth Giuseppe Ruvio, Max Ammann Dublin Institute of Technology, Ireland |
| 15:40 | WLAN Jacket Mounted Antenna Benito Sanz-Izquierdo, John Batchelor University of Kent UK | 17:40 | Compact Active Multiband Cellular Antenna for Mobile Handsets Anders Thornell-Pers, Per Erlandsson Laird Technologies, Sweden |



Oral Sessions, Thursday 22 March 2007 – 09:00-12:30

Session 4 – 09:00-10:30

Meta-material applications

Chairs: *Dr. Max Ammann, Dublin Institute of Technology, Ireland; Prof. Yewen Zhang, Tongji University, China*

Session 5 – 11:00-12:30

Modern antenna applications

Chairs: *Dr. Marta Martínez Vázquez, IMST GmbH, Germany; Dr. Kaizo Cho, NTT Docomo, Japan*

09:00 Compact Metamaterial Based Antennas for MIMO Applications (*INVITED*)

Tatsuo Itoh, Kevin Leong, Cheng-Jung Lee
University of California, Los Angeles, USA

11:00 Terahertz Technology for Space and EARTH Applications (*INVITED*)

Peter de Maagt
European Space Agency, The Netherlands

09:20 Antenna Possibilities using 2D Planar Periodic Structures (*INVITED*)

Vincent Fusco
Queens University of Belfast, UK

11:20 Small antennas for medical applications (*INVITED*)

Koichi Ito, Kazuyuki Saito, Masaharu Takahashi
Chiba University, Japan

09:40 Functional Materials with Magnetoelectric Couplings and Gyrotropy (*INVITED*)

Cheng-Wei Qiu^{1,2}, Saïd Zouhdi², Le-Wei Li¹
¹National University of Singapore;
²Laboratoire de Genie Electrique de Paris, CNRS, France

11:40 Dielectric Loaded Planar Antennas for Ultra Wideband and Dual-Band Applications

Dimitrios Tsamakidis, Zhipeng Wu
University of Manchester, UK

10:00 Wire Media - Ferrite Substrate for Patch Antenna Miniaturization

Igor Nefedov¹, Anne-Claude Tarot², Kouroch Mahdjoubi²
¹Helsinki University of Technology, Finland;
²University of Rennes, France

11:55 A Varactor-Tuned DVB-H Antenna

Zlatoljub D. Milosavljevic
Pulse Finland Oy, Finland

10:15 Dual Composite Right/Left-Handed (D-CRLH) Transmission Line

Wei Tong¹, Zhirun Hu¹, Christophe Caloz²
¹University of Manchester, UK; ²Ecole Polytechnique de Montreal, Canada

12:10 A Quadband Antenna for Laptop Applications

Duixian Liu, Brian Gaucher
IBM, USA



Oral Sessions, Thursday 22 March 2007 – 14:30-18:00

Session 6 – 14:30-16:00

Compact and dielectric antennas

Chairs: Dr. Joseph C. Modro, TDK, Ireland; Prof. Wei Hong, Southeast University, China

Session 7 – 16:30-18:00

Antenna measurements and techniques

Chairs: Prof. Jan Carlsson, Chalmers, Sweden; Prof. Yueping Zhang, Nanyang Technological University, Singapore

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| 14:30 | Cross Fan-Shaped Antenna with a Stop-Band in the VSWR Frequency Response (INVITED) <u>Hismatsu Nakano</u> , Kimio Morishita, Junji Yamauchi Hosei University, Japan | 16:30 | A New Probe-Array Approach for Fast SAR Measurements (INVITED) Andrea Cozza, Olivier Merckel, <u>Jean-Charles Bolomey</u> Supelec, France |
| 14:50 | A Novel Compact Dual-band Printed Monopole Antenna (INVITED) Jiawen Sun, <u>Zhenghe Feng</u> Tsinghua University, China | 16:50 | Overview of 6 Years R&D on Characterizing Wireless Devices in Rayleigh Fading Using Reverberation Chambers (INVITED) <u>Per-Simon Kildal</u> Chalmers University of Technology, Sweden |
| 15:10 | Concept of Electric and Magnetic Conductors to Reduce the DRA Size (INVITED) <u>Ahmed A. Kishk</u> , Wei Huang University of Mississippi, USA | 17:10 | Evaluation of the performances of several four-antenna systems in a reverberation chamber Aliou Diallo ¹ , Cyril Luxey ¹ , Philippe Le Thuc ¹ , Robert Staraj ¹ , Georges Kossiavas ¹ , Magnus Franzén ² , Per-Simon Kildal ³ ¹ University of Nice, France; ² Bluetest AB, Sweden; ³ Chalmers University of Technology, Sweden |
| 15:30 | Topology Optimization of Multiband Dielectric Resonator Antennas Using Finite-Difference Time-Domain Method Tsuyoshi Nomura ¹ , Kazuo Sato ¹ , Shinji Nishiwaki ² , Masataka Yoshimura ² ¹ Toyota Central R&D Labs, Japan; ² Kyoto university, Japan | 17:25 | Accuracy in Reverberation Chamber Antenna Correlation Measurements Paul Hallbjörner SP Swedish National Testing and Research Institute, Sweden |
| 15:45 | Dual-band Dielectric Antenna for WLAN Applications Zhao Wang ¹ , Xiaodong Chen ¹ , Brian Collins ² , Simon P. Kingsley ² ¹ Queen Mary, University of London, UK; ² Antenova Ltd, UK | 17:40 | Radiation Pattern Study of 2.4/5.2GHz Laptop Internal Antenna: Near Field Spherical Range Measurements and Full Wave Analysis Jerzy Guterman ¹ , Yahya Rahmat-Samii ¹ , Antonio Moreira ² , Custodio Peixeiro ² ¹ University of California Los Angeles, USA; ² IST – Tech. Univ. Lisbon, Portugal |



Oral Sessions, Friday 23 March 2007 – 09:00-12:30

Session 8 – 09:00-10:30

UWB, multiband antennas and systems

Chairs: Dr. Kevin Boyle, Philips Research Laboratories, U.K.; Prof. Feng Zhihe, Tsinghua, China

- 09:00 Small UWB Antennas for Wireless USB Dongle Attached to Laptop Computer (INVITED)
Zhi Ning Chen, Terence S.P. See
Institute for Infocomm Research, Singapore
- 09:20 Impedance Bandwidth Enhancement For UWB Slot Antenna (INVITED)
Dau-Chyrh Chang¹, Ji-Chyun Liu², Bing-Hao Zeng³, Ming-Yen Liu⁴
¹Oriental Institute of Technology, Taiwan, China; ²Ching Yun University, Taiwan, China; ³Yuan Ze, University, Taiwan, China; ⁴Da Yeh University, Taiwan, China
- 09:40 Antenna and Propagation Effects in UWB Communication - a whole systems view (INVITED)
Anthony Keith Brown
University of Manchester, UK
- 10:00 Multiband Diversity Antenna Performance Study for Mobile Phones
Ying Zhinong¹, Johan Avedal^{1&2}, Buon Kiong Lau²
¹Ericsson Mobile Communications AB, Sweden; ²Lund University, Sweden
- 10:15 Miniaturization of Planar Monopole Antennas for Ultrawide-Band Applications
Mei Sun, Yue Ping Zhang
Nanyang Technological University, Singapore

Session 9 – 11:00-12:30

MIMO and diversity antennas

Chairs: Dr. Angeliki Alexiou, Lucent technologies, UK; Prof. Yijun Feng, Nanjing University, China

- 11:00 Experimental Validation of Capacity Preserving Design for MIMO Arrays (INVITED)
David W. Browne, Jerzy Guterman, Michael Fitz, Yahya Rahmat-Samii
University of California Los Angeles (UCLA)USA
- 11:20 Wideband antenna with a folded dipole and a folded shorted patch (INVITED)
Kwai-Man Luk, Hang Wong
City University of Hong Kong, China
- 11:40 Oversampled Antenna Array: Supergain and Diversity Performance
Tzung-I Lee, Yuanxun Wang
UCLA, USA
- 11:55 Error Probability, Diversity and Coding Gain Considerations in Space-Time Coded Systems with Linear Precoding
Angeliki Alexiou
Bell Labs, Lucent Technologies, UK
- 12:10 BER Performance of W-CDMA Receiver Using Adaptive Array Antenna Technique in Indoor LOS/NLOS Environments
Qiaowei Yuan¹, Y. Takeda², K. Oya², Q. Chen², K. Sawaya², E. Kudoh², F. Adachi²
¹Intelligent Cosmos Research Institute Ltd., Japan; ²Tohoku University, Japan



Oral Sessions, Friday 23 March 2007 – 14:30-15:40

Session 10 and Price awarding – 14:30-15:40

Advancement in metamaterial research

Chairs: Dr. Yuanxun Wang, UCLA, USA; Dr Dirk Manteuffel, IMST GmbH, Germany

- 14:30 Sub-diffraction Focusing through
Compensated Bilayer of Anisotropic
Metamaterials: Theoretical Analysis and
Experimental Verification (*INVITED*)
*Yijun Feng, Junming Zhao, Xiaohua Teng, Yan
Chen*
Nanjing University China
- 14:50 Local Vortex Mode in Asymmetric Coupler
Composed of Conventional Microstrip and
Composite Right/Left-Handed Transmission
Line with Lumped Elements (*INVITED*)
*Yewen Zhang, Youzhen Wang, Fuqiang Liu,
Hongqiang Li, Hong Chen*
Tongji University China
- 15:10 Analysis and Application of Metamaterial
Spiral-Based Transmission Lines
*Titos Kokkinos, Alexandros Feresidis, John
Vardaxoglou*
Loughborough University, UK
- 15:25 New Artificial Magnetic Materials Based on
Fractal Hilbert Curves
Leila Yousefi, Omar M Ramahi
University of Waterloo, Canada



Poster Session 1, Wednesday 21 March 12:30-14:30

Chairs: Dr John Batchelor, Univ. of Kent, UK; Dr Buon Kiong Lau, Lund University, Sweden

- PS1-1. *The-Nan Chang*, **A dual-band antenna with coplanar ring and patch**, Tatung University, Taiwan, China.
- PS1-2. *Amir Jafargholi*, **VHF-LB Vest Antenna Design**, K.N.Toosi University of Technology, Iran.
- PS1-3. *Yue Gao, Choo Chiap Chiau, Xiaodong Chen, Clive Parini*, **Dielectric Loaded Folded Half Loop Antenna for DVB-H Terminals**, Queen Mary, University of London, UK.
- PS1-4. Pradeep Kumar, Ajay Singh, Tapas Chakravarty, Ghanashyam Singh, Sunil Bhooshan, **A Novel Printed Cross Antenna for Wideband Application**, Jaypee University of Information Technology, India.
- PS1-5. *Franz Hirtenfelder¹, Grzegorz Lubkowski²*, **3D Field Simulations using FI Time Domain Technique of Wedge- and Parabolic-Shaped Left Handed Materials (LHM)**, ¹CST GmbH, Germany, ²Techn. Univ. Darmstadt, Germany.
- PS1-6. *Ning Guan¹, Hirotaka Furuya¹, Kuniharu Himeno¹, Kenji Goto¹, Koichi Ito²*, **A monopole antenna made of a transparent conductive film**, ¹Fujikura Ltd., Japan, ²Chiba University, Japan.
- PS1-7. *Razvan Tamas, Jean Chilo, Pierre Saguét*, **Evaluation of the Impulse Response of an Ultra-Wide Band Antenna by Deconvolution Using the Method of Moments**, Institute of Microelectronics, Electromagnetism, and Photonics, France.
- PS1-8. *Shun Shi Zhong, Li Na Zhang, Xian Ling Liang*, **Compact Tri-Band Printed Monopole Antenna**, Shanghai University, China.
- PS1-9. *Katsunori Ishimiya*, **Multi-band folded dipole antenna for mobile phone**, Tokyo Institute of Technology, Japan.
- PS1-10. *Yue Ping Zhang¹, Mei Sun¹, Kai Meng Chua², Lai lai Wai², Duixian Liu³, Brian Gaucher³*, **Antenna-in-Package in LTCC for 60-GHz Radio**, ¹Nanyang Technological university, Singapore, ²Singapore Institute of Manufacturing Technology, Singapore, ³IBM, US.
- PS1-11. *Liwei Zhang, Yewen Zhang*, **Zero-average refractive index Gaps of Photonic Crystals Consisting of Normal and CRLH Transmission Lines**, Tongji University, China.
- PS1-12. *Hua long Sun, Wen-Xun Zhang*, **Design of Broadband Element of Transmit-array with Polarization Transform**, Southeast University, China.
- PS1-13. *Jieh-Sen Kuo*, **High frequency ratio antenna for RFID tags**, Kao Yuan University, TW, China.
- PS1-14. *Qing Han, Nobuyuki Tenno, Amane Miura, Takashi Ohira*, **Tapered Radial Fed Circuit and Varactor-Mounted Waveguide Switch for Millimeter-Wave Switched Sector-Beam Antenna**, ATR, Japan.
- PS1-15. *Somboon Theerawisitpong, Toshitatsu Suzuki, Yasuo Watanabe*, **A Compact Modified-Meander Resonator for Microwave BPF with Harmonic-Suppression for 3G Mobile Communication System**, Nippon Institute of Technology, Japan.
- PS1-16. *Yuehe Ge¹, Karu Esselle¹, Trevor Bird²*, **Wideband Stacked Dielectric Resonator Antennas**, ¹Macquarie University, Australia, ²CSIRO ICT Centre.
- PS1-17. *Elena Saenz¹, Pekka Ikonen², Ramon Gonzalo¹, Iñigo Ederra³, Peter de Maagt⁴, Sergei Tretyakov²*, **Modelling and Analysis of Composite Antenna Superstrates Based on Grids of Dipoles and Wires**, ¹University of Navarra, Spain, ²Helsinki University of Technology, Finland, ³Universidad Publica de Navarra, Spain, ⁴European Space Agency, The Netherlands.
- PS1-18. *Wei Liu¹, Renbiao Wu², Richard Langley¹*, **Beamspace Adaptive Beamforming for Broadband Planar Arrays**, ¹University of Sheffield, UK, ²Civil Aviation University of China, China.

Poster Session 1, Wednesday 21 March 12:30-14:30

- PS1-19. *Qiubo Ye*¹, *Zhi Ning Chen*², *Terence See*², **A Novel Butterfly-Shaped Monopole UWB Antenna**,
¹Communications Research Centre, Canada, ²Institute for Infocomm Research, Singapore.
- PS1-20. *Xiulong BAO*, *Max Ammann*, **Printed Band-Rejection UWB Antenna with H-shaped Slot**, Dublin
Institute of Technology, Ireland.
- PS1-21. *Mohammad Jalali*, **Performance Amelioration of an Active Integrated Spiral Antenna System for UWB Applications**, Amirkabir University, Iran.
- PS1-22. *Lei Yu*, *Nan Lin*, *Wei Liu*, *Richard Langley*, **Bandwidth Performance of Linearly Constrained Minimum Variance Beamformers**, University of Sheffield, UK.
- PS1-23. *Mohammad Mahdi Tajdini*¹, *Mahmoud Shahabadi*², **Wideband Planar Log-Periodic Antenna**,
¹Sharif University of Technology, Iran, ²University of Tehran, Iran.



Poster Session 2, Thursday 22 March 12:30-14:30

Chairs: Dr. Yi Huang, University of Liverpool, U.K.; Dr. Qing Han, ATR, Japan

- PS2-1. *Dimitrios Tsamakidis, Zhipeng Wu, The Effect of Dielectric Loading on Printed Monopoles*, University of Manchester, UK.
- PS2-2. *Shok Low, Zhipeng Wu, Microstrip-Coupled Rectangular Dielectric Resonator Antennas on Different Substrates*, University of Manchester, UK.
- PS2-3. *Xuan Hui Wu, Ahmed A. Kishk, An Ultra-wide Band Omnidirectional Monopole Antenna*, University of Mississippi, US.
- PS2-4. *JianWu Zhang¹, Wen Sun¹, Cheng-Zhong Xu², Performance Evaluation of Low Complex Smart Antennas in a Mobile Station for the Downlink of 3G*, ¹Hangzhou Dianzi University, China, ²Wayne State University, US.
- PS2-5. *Kenneth Ford, Barry Chambers, A New Approach to the Design of Low Frequency Radar Absorbent Materials*, University of Sheffield, UK.
- PS2-6. *Apostolos Sotiriou, Pantelis Varlamos, Panagiotis Trakadas, Christos Capsalis, Broadband Wireless Access Base Station Performance using Smart Antenna Cell*, National Technical University of Athens, Greece.
- PS2-7. *Abid Ali, Zhirun Hu, Mohammad Khan, Microstrip Patch Antenna with Harmonic Suppression using Complementary Split Ring Resonators*, University of Manchester, UK.
- PS2-8. *Wei Liu¹, Stephan Weiss², Design of Frequency Invariant Beamformer for Broadband Arrays*, ¹University of Sheffield, UK, ²University of Strathclyde, UK.
- PS2-9. *Mats Andersson, Charlie Orlenius, Magnus Franzén, Measuring the Impact of Multiple Terminal Antennas on the Bit Rate of Mobile Broadband Systems Using Reverberation Chambers*, Bluetest AB, SE.
- PS2-10. *Greepol Niyomjan, Yi Huang, An Accurate and Simple Design of High Impedance Surface Structure Using an Enhanced Effective Medium Method*, The University of Liverpool, UK.
- PS2-11. *Samel Arslanagic¹, Richard Ziolkowski², Olav Breinbjerg¹, Far-Field Properties of a Line Source-Excited Electrically Small Quadrupolar Metamaterial Cylindrical Shell*, ¹University of Denmark, Denmark, ²University of Arizona, US.
- PS2-12. *Xuebin Hou¹, Clive Parini¹, Stuart Gregson², Planar near-field measurement on an omnidirectional UWB antenna*, ¹Queen Mary, University of London, UK, ²Nearfield Systems Inc., US.
- PS2-13. *Anders Karlsson, Efficiency, gain and Q of antennas*, Lund University, Sweden.
- PS2-14. *Salam Khamas, Conformal Archimedean Spiral Antenna Above a Cylindrical Groundplane*, University of Sheffield, UK.
- PS2-15. *Seyed Mohammad Amjadi, Mohammad Soleimani, A Novel Compact MNGV-AMC Structure for Low Frequency Band Mobile Communications*, Iran University of Science and Technology, Iran.
- PS2-16. *Muhammad Ramlee Kamarudin¹, Peter Hall¹, Franck Colombel², Mohamed Himdi², CPW-Fed Disc-loaded Monopole Array Antenna with Integrated PIN Diode Switches*, ¹University of Birmingham, UK, ²Université de Rennes, France.
- PS2-17. *Kristian Karlsson¹, Jan Carlsson¹, Peter Ankarson¹, Zhinong Ying², Combination of Full Wave Simulations and Equivalent Circuit Models in Predicting Coupling between Antenna Element and Nearby Object in Mobile Phone*, ¹SP Swedish National Testing and Research Institute, Sweden, ²Sony Ericsson Mobile, Sweden.
- PS2-18. *Takuji Arima, Toru Uno, Undesired Reflection from Matched DNG Slab in RC-FDTD Analysis and Its Improving Method*, Tokyo University of Agriculture and Technology, Japan.

Poster Session 2, Thursday 22 March 12:30-14:30

- PS2-19. *Amit Mehta*¹, *Atsushi Sanada*², *Dariush Mirshekar*³, *Hisamatsu Nakano*⁴, **A Low Profile Tilted Beam Single Arm Spiral Antenna On A High Impedance Surface For Beam Steering Applications**, ¹University of Wales, UK, ²Yamaguchi University, Japan, ³University of Essex, UK, ⁴Hosei University, Japan.
- PS2-20. *Fang He, Zhipeng Wu*, **Modelling of a Slot Loop Antenna on Magnetic Material Substrate**, University of Manchester, UK.
- PS2-21. *Gareth Conway, William Scanlon*, **Low-Profile Patch Antennas for Over-Body-Surface Communication at 2.45 GHz**, Queen's University, Belfast, UK.
- PS2-22. *Preeti Sharma*, **Broadband Linearly Tapered Slot Antenna with Corrugated Edges for Phased Array and Multibeam Systems**, Indian Institute of Technology Delhi, India.
- PS2-23. *Lu Guo, Masood Ur Rehman, Jianxin Liang, Xiaodong Chen, Clive Parini*, **A Study of Cross Ring Antenna for UWB Applications**, Queen Mary, University of London, UK.



Poster Session 3, Friday 23 March 12:30-14:30

Chairs: Dr Zhirun Hu, University of Manchester, UK; Dr. SooLiam Ooi, Motorola, USA

- PS2-1. *Leila Yousefi¹, Baharak Mohajer-Iravan², Omar Ramahi¹, Low Profile Wide Band Antennas using Electromagnetic Bandgap Structures with Magneto-Dielectric Materials*, ¹University of Waterloo, Canada, ²University of Maryland, Canada.
- PS2-2. *Tzong-Chee Yo, Chien Ming Lee, Ching Hsing Luo, Small Single Band Circular Polarization and Dual Band Circular Patch Antenna*, National Cheng Kung University, Taiwan, China.
- PS2-3. *Pothula Hari Krishna, Victor Cánovas, Prasadh 'Ramachandran Claes Beckman, Multi-band PIFA for Combined 3G and DVB-H Terminals – A Preliminary Study*, University of Gavle, Sweden.
- PS2-4. *Atif Shamim, Greg Brzezina, Muhammad Arsalan, Langis Roy, 5.2 GHz Differential LTCC Antenna and Balun for Biomedical System in Package (SiP) Application*, Carleton University, Canada.
- PS2-5. *Shi Cheng, Anders Rydberg, Inverted-F Antenna for 3D Integrated Wireless Sensor Applications*, Uppsala University, Sweden.
- PS2-6. *Yasir Alfadh¹, Xiaodong Chen¹, Clive Parini¹, Brian Collins^{1&2}, Design and Testing of a Compact 'Semi-Smart' Base Station Antenna in Cellular Networks*, ¹Queen Mary, University of London, UK, ²Antenova Ltd, UK.
- PS2-7. *Benito Sanz-Izquierdo, Jiang Xu, John Batchelor, Elliptical Antenna with Circular Cuts for UWB applications*, University of Kent, UK.
- PS2-8. *Pavel Belov, Yan Zhao, Akram Alomainy, Yang Hao, Experimental study of the sub-wavelength imaging by a wire medium slab*, Queen Mary University of London, UK.
- PS2-9. *Xiaojing Xu, Yuanxun Wang, Chu's Limit and Switched Electrically Small Antennas*, University of California, Los Angeles, US.
- PS2-10. *Shaopeng Feng, Weiling Wu, An Iterative Algorithm of Channel Estimation for MIMO-OFDM Systems Based on Discrete Cosine Transform*, Beijing University of Posts and Telecommunications, China.
- PS2-11. *Stefan Schild, Nicolas Chavannes, Niels Kuster, Accurate Treatment of Arbitrarily Curved 3D Thin Conductive Sheets in Real-World FDTD Applications*, Foundation for Research on Information Technologies in Society (IT²IS), Switzerland.
- PS2-12. *Stefan Benkler¹, Nicolas Chavannes², Niels Kuster¹, Optimization of Antenna Designs Using the FDTD Simulation Method Enhanced with the Subcell Modeling Technique*, ¹Foundation for Research on Information Technologies in Society (IT²IS), Switzerland, ²Schmid & Partner Engineering AG, Switzerland.
- PS2-13. *Yiqun LI¹, Thomas Cantin¹, Benoît Derat¹, Daniel Pasquet², Jean-Charles Bolomey³, Application of Resonant Matching Circuits for Simultaneously Enhancing the Bandwidths of Multi-band Mobile Phones*, ¹SAGEM Communication, France, ²ENSEA, France, ³Supélec, France.
- PS2-14. *Susanta Parui, Santanu Das, Performance Enhancement of Microstrip Open Loop Resonator Band Pass Filter By Defected Ground structures*, Bengal Engineering and Science University, India.
- PS2-15. *Yan Zhao, Pavel Belov, Yang Hao, Spatially Dispersive Finite-Difference Time-Domain Modelling of the Wire Medium for Subwavelength Imaging*, Queen Mary, University of London, UK.
- PS2-16. *Wu Bing, Xianzhong Xie, Joint Transmission Technology with Correlated Antenna Elements*, Chongqing University of Posts and Telecommunications, China.

Poster Session 3, Friday 23 March 12:30-14:30

- PS2-17. *Mohammad Neshat Daryoosh Saeedkia, Safieddin Safavi-Naeini, On the Behavior of the Radiation Field from Large-Aperture Terahertz Photoconductive Antenna under Impulsive Excitation*, University of Waterloo, Canada.
- PS2-18. *Di Li, Yi Huang, A Theory of How to Improve the Radiation of the Photoconductive Antenna*, University of Liverpool, UK.
- PS2-19. *Atiqur Rahman, Yang Hao, A novel tapered slot CPW-fed antenna for ultra-wideband applications and its on/off body performance*, Queen Mary, University of London.
- PS2-20. *Mohammad Neshat, Daryoosh Saeedkia, Safieddin Safavi-Naeini, Low Profile Double Negative Lens Antenna*, University of Waterloo, Canada.
- PS2-21. *Deborah Raynes¹, Jim DeLap², Nick Hirth², Dane Thompson², Advances in Simulation Techniques for Complex Antenna Array Systems*, ¹Ansoft UK, UK, ²Ansoft Corporation, USA.
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