



## **NEWCOM++ / COST 2100**

# **Joint Workshop on Wireless Communications**

**1 – 2 March 2011, Paris, France**

**<http://www.newcom-project.eu/jncw2011>**

**Organizer: Prof. Hikmet Sari (SUPELEC)**

**Technical Program Co-Chairs: Davide Dardari (University of Bologna)  
Alain Sibille (Telecom ParisTech)**

This workshop is the final dissemination event of the European Network of Excellence in Wireless Communications (NEWCOM++) and of the COST Action 2100 Pervasive Mobile and Ambient Wireless Communications. The main goal is to disseminate the research results to European wireless communications industry, academic institutions, research centers, and regulatory bodies. JNCW 2011 is a unique opportunity for R&D engineers and managers in wireless industry, operators and service providers to get familiarized with NEWCOM++ and COST 2100, see their major achievements, and build ties with their partner institutions for future cooperation.

The workshop program extends over two full days. In the morning sessions, NEWCOM++ Work Package Leaders and COST 2100 Working Group/Subgroup Leaders will briefly describe their work packages and summarize the main achievements. The afternoon sessions are devoted to technical presentations selected from the Open Call after a rigorous review process. The Call for Papers was not restricted to the NEWCOM++ and COST 2100 communities, and submissions were made by researchers from outside of these two organizations. The technical sessions of Tuesday afternoon are lecture type sessions with oral presentations, while the sessions of Wednesday afternoon include poster presentations and demos. Note that the poster papers went through the same review process as the oral presentation papers, and both categories of papers appear in the workshop CD-ROM.

# WORKSHOP PROGRAM

**Tuesday, 1 March 2011**

**09:00 – 09:45**

## **Opening and Overviews**

### **Opening of the workshop**

Hikmet Sari, JNCW 2011 Organizer, SUPELEC, France

### **NEWCOM++ Overview**

Sergio Benedetto, NEWCOM++ Scientific Director, Politecnico di Torino, Italy

### **COST 2100 Overview**

Roberto Verdone, COST 2100 Chair, University of Bologna, Italy

**09:45 – 11:00**

## **The Radio Channel**

### **Session Chair: Roberto Verdone**

#### **COST 2100 WG2 – Radio Channel**

Alain Sibille, Télécom ParisTech, France

#### **COST 2100 SWG2.1 – RF Aspects in UWB Communication and Localization**

Grzegorz Adamiuk, Karlsruhe Institute for Technology, Germany

#### **COST 2100 SWG2.2 – Compact Antenna Systems for Terminals**

Moray Rumney, Agilent, United Kingdom

#### **COST 2100 SWG2.3 – Reference Channel Modelling**

Claude Oestges, Université Catholique de Louvain, Belgium

**Coffee Break (11:00 – 11:30)**

**11:30 – 13:15**

## **From the Radio Channel to the Wireless Link**

### **Session Chair: Pierre Duhamel**

#### **NEWCOM++ WPR.1 – Modeling, Calibration and Validation of Multi-dispersive Multi-Link Channels**

Bernard Fleury, Aalborg University, Denmark

#### **NEWCOM ++ WPR.2 – Feedback and Resolution of the Channel State**

Raymond Knopp, Eurecom Institute, France

#### **NEWCOM ++ WPR.3 – Adaptive Coding/Modulation for the Wireless Channel**

Andreas Polydoros, University of Athens, Greece

#### **NEWCOM ++ WPR.4 – Iterative Receivers for Wireless Communications**

Erdal Arıkan, Bilkent University, Turkey

#### **NEWCOM ++ WPR.7 – Joint Source and Channel Coding/Decoding**

Christine Guillemot, CNRS, France

#### **COST 2100 WG1 – Transmission Techniques and Signal Processing**

Alister Burr, University of York, United Kingdom

**Lunch (13:15 – 14:30)**

**14:30 – 16:00**

## Technical Session 1: Advanced Communications Techniques

### Session Chair: Davide Dardari

#### **On the Secrecy Degrees of Freedom of MISO Wiretap Channels with Delayed CSIT**

Mari Kobayashi, Pablo Piantanida, Sheng Yang (SUPELEC, France)  
Shlomo Shamai (Technion, Israel)

#### **Crystallized Rate Regions in MIMO communications**

Adrian Kliks, Pawel Sroka (Poznan University of Technology, Poland);  
Mérrouane Debbah (SUPELEC, France)

#### **MAC Layer Outage Probability of Bounded Ad Hoc Networks**

Mariam Kaynia, Geir E. Øien (Norwegian University of Science and Technology, Norway);  
Flavio Fabbri, Roberto Verdone (University of Bologna, Italy);

#### **A Pre-Bayesian Game Formulation for Energy-Efficient CDMA Power Control**

Giacomo Bacci, Marco Luise (University of Pisa, Italy)

#### **On the Performance of Distributed Power Allocation and Scheduling in Multi-Cell OFDMA Systems**

Sergio Cicalò, Velio Tralli (University of Ferrara, Italy);  
Ana Perez-Neira (UPC, Spain)

### Coffee Break (16:00 – 16:30)

### 16:30 – 18:00

## Technical Session 2: Channels and Localization

### Session Chair: Alain Sibille

#### **Dynamic Channel Modeling at 2.4 GHz for On-Body Area Networks**

Raffaele D'Errico, Laurent Ouvry (CEA-LETI, France);  
Lingfeng Liu, Claude Oestges (Université Catholique de Louvain, Belgium);  
Philippe De Doncker (ULB, Belgium)

#### **Validation of the COST2100 Channel Model in Indoor Environments**

Katsuyuki Haneda, Juho Poutanen, Veli-Matti Kolmonen, Pertti Vainikainen (Aalto University, Finland);  
Lingfeng Liu; Claude Oestges (Université Catholique de Louvain, Belgium);  
Fredrik Tufvesson (Lund University, Sweden)

#### **The Diffuse Multipath Component and Multipath Component Visibility**

Dana Porrat (The Hebrew University, Israel)

#### **Statistical Characterization and Mitigation of NLOS Bias in UWB Localization Systems**

Francesco Montorsi, Fabrizio Pancaldi, Giorgio M. Vitetta (University of Modena and Reggio Emilia, Italy)

#### **Discrete Fourier Transform based TOA estimation in UWB systems**

Achraf Hassan Mallat, Jerome Louveaux, Luc Vandendorpe (Université Catholique de Louvain, Belgium);  
Mario Di Dio, Marco Luise (University of Pisa, Italy)

### Workshop Banquet (19:30 – 22:00)

Chez Jenny, 39 boulevard du Temple, 75003 Paris  
(Métro: République, Temple)

## **Wednesday, 2 March 2011**

**09:00 – 11:00**

### **From the Wireless Link to the Radio Network**

**Session Chair: Sergio Palazzo**

**NEWCOM ++ WPR.5 – Coding for Multi-Hop Wireless Networks**

Michael Heindlmaier, Technical University of Munich, Germany

**NEWCOM ++ WPR.6 – Relaying and Cooperation in Networks**

Luc Vandendorpe, Université Catholique de Louvain, Belgium

**NEWCOM ++ WPR.10 – Network Theory**

Iordanis Koutsopoulos, Center for Research and Technology Hellas, Greece

**NEWCOM ++ WPR.8 – Scheduling and Adaptive Radio Resource Assignment**

Roberto Verdone, University of Bologna, Italy

**NEWCOM ++ WPR.9 – Joint RRM and Flexible Use of Radio Spectrum**

Jordi Perez Romero, Universitat Politècnica de Catalunya, Spain

**NEWCOM ++ WPR.11 – Opportunistic Networks**

Sergio Palazzo, University of Catania, Italy

**COST 2100 WG3 – Radio Network Aspects**

Narcis Cardona, Polytechnic University of Valencia

**COST 2100 SWG3.1 – Measurements Based Optimization for Mobile Wireless Networks**

Maciej Nawrocki, Optyme, Poland

### **Coffee Break (11:00 – 11:30)**

**11:30 – 13:15**

### **Applications of Radio Technologies**

**Session Chair: Luis Correia**

**COST 2100 SIG B – Hybrid Cellular and Broadcasting Networks**

Narcis Cardona, Polytechnic University of Valencia

**COST 2100 SIG C – Mobile-to-Mobile Communications**

Christoph Mecklenbrauker, Technical University of Vienna, Austria

**COST 2100 SIG E – Body Communications**

Arie Reichman, Ruppin, Israel

**NEWCOM ++ WPR.A – Security in Wireless Networks**

Merouane Debbah, SUPELEC, France

**NEWCOM ++ WPR.B – Localization and Positioning Techniques**

Davide Dardari, University of Bologna, Italy

**NEWCOM ++ WPR.C – Flexible Radio Platforms**

Dominique Noguét, CEA - LETI, France

### **Lunch (13:15 – 14:30)**

**14:30 – 15:45**

## **Demos and Posters Session 1**

### **A. Demos**

#### **D1. Evaluation of Tracking Algorithms using Heterogeneous Technologies**

Francesco Sottile, Maurizio A. Spirito (ISMB, Italy);  
Pau Closas, Javier Arribas, Carles Fernández (CTTC, Spain);  
Michel Kieffer (CNRS, France);  
Montse Nájjar, Eva Lagunas (UPC, Spain);  
Achraf Mallat, Pierre Gérard, Luc Vandendorpe (UCL, Belgium);  
Davide Dardari, Nicolò Decarli (CNIT, Italy);  
Andrea Conti (University of Ferrara, Italy)

#### **D2. SDR4ALL – A New Way of Teaching Telecommunications**

Sylvain Azarian, Leonardo Cardoso, Luca Rose, Mérouane Debbah (SUPELEC, France)

#### **D3. KauNet: A Network Emulation System with Cross-Layer Capabilities**

Per Hurtig, Tomas Hall, Anna Brunstrom, Johan Garcia (Karlstad University, Sweden);  
Tanguy Pérennou (CNRS, France)

#### **D4. UWB Channel Sounding System at 60 GHz**

Walter Wirmitzer (MEDAV, Germany);  
Paolo Garcia, Thoma Reiner (Technical University of Ilmenau, Germany)

#### **D5. ViCE-WiCom, the Software Simulation and Data Library (SSL)**

Renato Narcisi (University of Catania, Italy)

#### **D6. Virtual MIMO – Outdoor to Indoor Experimental Evaluation**

Matthew Webb, Carmen Stan, Mark Beach (University of Bristol, UK)

#### **D7. Demonstration of OpenAirInterface.org Platform**

Florian Kaltenberger, Raymond Knopp (EURECOM, France);  
Nicolai Czink (FTW, Austria);  
Claude Oestges (Université Catholique de Louvain, Belgium);

### **B. Poster Presentations**

#### **P1. The COST 2100 MIMO Channel Model**

Lingfeng Liu, Claude Oestges (Université catholique de Louvain, Belgium);  
François Quitin, Philippe De Doncker (ULB, Belgium);  
Katsuyuki Haneda, Juho Poutanen, Pertti Vainikainen (Aalto University, Finland);  
Fredrik Tufvesson (Lund University, Sweden)

#### **P2. Directional Characterisation of the Scattering Field Inside an Anechoic Chamber**

Denia Bouhired, Geoffrey Hilton, Mark Beach (University of Bristol, UK)

#### **P3. Upper Bounds on Wheeler Cap Antenna Efficiency Measurements via Fixed-Geometry Cavity Design**

Constantine G. Kakoyiannis, Philip Constantinou (National Technical University of Athens, Greece)

#### **P4. Electromagnetic Analysis of RFID TAG Backscattering**

Francesco Guidi (ENSTA ParisTech and University of Bologna, France);  
Christophe Roblin (ENSTA ParisTech, France);  
Moussa Sacko, Alain Sibille (Telecom ParisTech, France);

#### **P5. GRASS-RaPlaT – an Open-Source Tool for Radio Coverage Calculations**

Igor Ozimek, Andrej Hrovat, Andrej Vilhar, Tine Celcer, Tomaz Javornik (Jozef Stefan Institute, Slovenia);  
Iztok Saje (Mobitel, d. d., Slovenia);

**P6. SCME true PDP emulation using a channel emulator and a mode-stirred reverberation chamber**  
Miguel A. Garcia-Fernandez, David A Sanchez-Hernandez (Technical University of Cartagena, Spain)

**P7. Two-stage Over the Air (OTA) Test Method for MIMO Device Performance Evaluation**  
Ya Jing (Agilent Technologies, P.R. China)

**P8. Capacity of Multiple Access Channel with Noncausal and Strictly Causal States at the Encoders**  
Abdellatif Zaidi (Université Paris-Est Marne La Vallée, France);  
Pablo Piantanida (SUPELEC, France);  
Shlomo Shamai (Technion, Israel)

**P9. Semi-Blind Key-Agreement over MIMO Quasi-Static Channels**  
Francesco Renna; Nicola Laurenti (University of Padova, Italy);  
Matthieu Bloch (Georgia Institute of Technology Metz, France);

**P10. Factor-Graph-Based Detection Algorithms for Coded OFDM over Time-Varying Channels**  
Werner Haselmayr, Bernhard Eitzlinger, Andreas Springer (Johannes Kepler University Linz, Austria)

**P11. Trading-off Throughput vs. Energy in Adaptive BIC-OFDM over Nonlinear Channels: a Novel Approach**  
Filippo Giannetti, Ivan Stupia, Vincenzo Lottici, Riccardo Andreotti (University of Pisa, Italy);  
Luc Vandendorpe (Université Catholique de Louvain, Belgium)

**P12. Compressed Channel Estimation and Data Detection Algorithms for IR-UWB**  
Alessandro Barbieri, Fabrizio Pancaldi, Giorgio M. Vitetta (University of Modena and Reggio Emilia, Italy)

**P13. Multi-layer Coding in Oblivious Cooperation via Occasional Relaying**  
Evgeniy Braginskiy, Avi Steiner, Shlomo Shamai (Technion, Israel)

**P14. A Parallel Implementation of LLR Generator for Soft-input Soft-output MIMO Detection**  
Guido Masera, Bin Wu (Politecnico di Torino, Italy)

**P15. Combined Hybrid ARQ and Link Adaptation for Coded Cooperation in Block-Fading Channels**  
Mihaly Varga, Mihai Alin Badiu, Vasile Bota (Technical University of Cluj Napoca, Romania)

**P16. Distributed Network Coded Control Channel for Large Wireless Networks**  
Nicola Baldo, Lorenza Giupponi (CTTC, Spain);  
Alfred Asterjadhi, Michele Zorzi (Università degli Studi di Padova, Italy)

**P17. Unequal Error Protection Rateless Coding for Urban Traffic Data Broadcast**  
Cedomir Stefanović, Vladimir Crnojević (University of Novi Sad, Serbia);  
Dejan Vukobratović (University of Strathclyde, United Kingdom);  
Lorenzo Niccolai, Francesco Chiti, Romano Fantacci (Università degli Studi di Firenze, Italy)

## Coffee Break (15:45 – 16:15)

**16:15 – 17:30**

### Demos and Posters Session 2

#### A. Demos

**D8. Two-Stage MIMO over the Air Measurements**  
Hongwei Kong, Ya Jing (Agilent Technologies, China)

**D9. MAGALI Platform Demonstration**  
Fabien Clermidy, Romain Lemaire (CEA-LETI, France)

**D10. Joint Source/Protocol/Channel Decoding: Application to Multimedia Files Transmitted over Wireless Channels**  
Michel Kieffer, Pierre Duhamel, Cagatay Dikici (CNRS, France)

**D11. Self-Organizing Network with Intelligent Relaying**

Bilal Zaafar, Sohayl Gherekhloo, Aidin Asgharzadeh, Mehdi Tavakoli Garrosi, Martin Haardt (Technical University of Ilmenau, Germany)

**D12. WSN Testbed for Lighting Control and Environmental Monitoring**

Matevz Vucnik, Carolina Fortuna, Maria Porcius, Mihael Mohorcic (Jozef Stefan Institute, Slovenia)

**D13. Joint Channel Estimation and Equalization for Downlink OFDMA Systems in Very Rapidly Varying Mobile Channels**

Habib Senol, Erdal Panayirci (Kadir Has University, Turkey);  
Vincent Poor (Princeton University, USA)

**D14. Common Operator Approach for Flexible Radio Design**

Malek Naoues, Dominique Noguét (CEA-LETI, France);  
Yves Louet (SUPELEC, France),  
Khaled Grati, Adel Ghazel (SUPCOM, Tunisia)

**B. Poster Presentations****P18. Performance of an IEEE 802.15.6 Wireless Body Area Network**

Flavia Martelli, Chiara Buratti, Roberto Verdone (University of Bologna, Italy)

**P19. Large System Analysis of Interference Alignment in Clustered Wireless Ad Hoc Networks**

Roland Tresch (FTW, Austria);  
Giuseppa Alfano (Politecnico di Torino, Italy);  
Maxime Guillaud (Vienna University of Technology, Austria)

**P20. Macro Network Aspects For Realistic LTE Usage Scenarios**

Ayaz Khan Afridi, Ahmad (Royal Institute of Technology, Sweden)

**P21. Efficient Margin Adaptive Scheduling for MIMO-OFDMA Systems**

Marco Moretti, Giulio Dainelli (University of Pisa, Italy);  
Ana Pérez-Neira (CTTC, Spain)

**P22. Scheduling Policies for Improved Throughput Guarantees in MIMO Broadcast Channel**

Jawad Rasool, Geir E. Øien (Norwegian University of Science and Technology, Norway)

**P23. Exploiting Opportunistic Interactions for Localization in Heterogeneous Wireless Systems**

Francesco Zorzi, Andrea Bardella, Andrea Zanella (University of Padova, Italy);  
Tanguy Perennou (University of Toulouse - ISAE / LAAS-CNRS, France);  
GuoDong Kang (ISAE, France);  
Francesco Sottile (ISMB, Italy)

**P24. On Delay Estimation with Multicarrier Signals and its Relation with Cognitive Positioning**

Mario Di Dio, Marco Luise, Francesca Zanier (University of Pisa, Italy);  
Achraf Hassan Mallat, Jerome Louveaux, Luc Vandendorpe (Université Catholique de Louvain, Belgium)

**P25. Localization of Mobile Devices in Non-Line-of-Sight Scenarios**

Davy Gaillot, Paul Stefanut, Martine Lienard, Pierre Degauque (University of Lille, France)

**P26. A Two-Step RA Algorithm For Multiple DF Relays Aided OFDMA Downlink Transmission**

Tao Wang, Luc Vandendorpe (Université Catholique de Louvain, Belgium)

**P27. Improving the Energy-Efficiency of Machine-to-Machine Communications with Cooperative ARQ**

Jesus Alonso-Zarate, Christos Verikoukis (CTTC, Spain);  
Luis Alonso (UPC, Spain)

**P28. Exact and Approximated Factor Graph Methods for MIMO Detection**

Bernhard Eitzlinger, Werner Haselmayr, Andreas Springer (Johannes Kepler University Linz, Austria)

**P29. Opportunistic Routing with Agendas of Contacts**

Mathias Boc, Anne Fladenmuller, Marcelo Dias de Amorim (UPMC Université Paris 6, France);  
Sergio Palazzo (University of Catania, Italy)

**P30. Iterative Interference Cancellation in Generalized Multicarrier Communications**

Adrian Kliks, Hanna Bogucka (Poznan University of Technology, Poland)

**P31. Optimal Dimensioning of Sensor Networks for Spatial Field Estimation with Random Sampling**

Javier Matamoros, Carles Antón-Haro ( CTTC, Spain);  
Flavio Fabbri, Davide Dardari (University of Bologna, Italy)

**P32. A Signal Strength Based Cross Layer QoS Routing Protocol for OFDMA Based Wireless Ad Hoc Networks**

Hong Yi Xiong, Eliane Bodanese (Queen Mary, University of London, United Kingdom)

**P33. A Trellis-Based ACM Algorithm for Coded Cooperation in OFDMA Wireless Systems**

Mihai Alin Badiu, Mihaly Varga, Vasile Bota (Technical University of Cluj Napoca, Romania)

**P34. An Investigation of Pulse-Based M-ary UWB-FSK**

Fernando Ramirez-Mireles (ITAM, Mexico);  
Luis Orozco Barbosa (Universidad de Castilla La Mancha, Spain)