

Detailed Technical Program

Day 1: Tuesday 26th June 2018

09:00-09:30 **Opening Ceremony**

Room Amphitheatre Maupertuis

Participants: Patrick Charpy, Representative of Saint Malo Metropole
Christophe Bidan, Director of Campus of Rennes of CentraleSupélec
Philippe Besnier, Deputy Director of IETR
Ramesh Pyndhia & Jacques Palicot, General Co-Chairs
Faouzi Bader, Maria Gabriella Di Benedetto & Youssef Nasser TPC Co-Chairs

09:30-10:30 **Plenary Talk 1**

THz communication and its potential for beyond 5G networks

by Thomas Kürner, Technische Universität Braunschweig

Room Amphitheatre Maupertuis

Chair Faouzi Bader

11:00-12:30 **Session 01: Sharing Resources & Management**

Room Amphitheatre Maupertuis

Chair Honggang Zhang

Joint Downlink/Uplink Power Optimization for Broadband Full-duplex Cellular Systems

Peiran Wu, Minghua Xia and Chengpei Tang (Sun Yat-sen University, P.R. China).

An Efficient Heuristic for Joint User Association and RRH Clustering in Cloud Radio Access Networks

Hussein Taleb (ESIB, Saint-Joseph University, Lebanon); Melhem El Helou (Saint Joseph University of Beirut, Lebanon); Samer Lahoud (ESIB, Saint-Joseph University of Beirut, Lebanon); Kinda Khawam (Université de Versailles, France); Steven Martin (Paris-Sud University, France).

Queue-Aware Priority Based Scheduling and Power Allocation in Full-Duplex OFDMA Cellular Networks

Hassan Fawaz (Saint Joseph University of Beirut, Lebanon); Samer Lahoud (ESIB, Saint-Joseph University of Beirut, Lebanon); Melhem El Helou (Saint Joseph University of Beirut, Lebanon); Joe Saad (Saint Joseph University, Lebanon).

Joint Optimization of Link Adaptation and HARQ Retransmissions for URLLC Services

Matha Deghel (Orange Labs, France); Salah Eddine Elayoubi (CentraleSupélec, France); Ana Galindo-Serrano and Raphael Visoz (Orange Labs, France).

Low Computational Complexity Design of Resource Sharing and Precoding for Multicast Services

Victor Exposito (CentraleSupélec, France); Nicolas Gresset (Mitsubishi Electric Research Centre Europe, France).

11:00-12:30 Session 02: New Physical Layer Waveforms

Room Lamennais 1

Chair Mohamad Mroue

Robust MMSE Based Intra-Tier Precoding Design for A VFDM System

Rugui Yao, Lukun Yao, Yan Gao, Xiaoya Zuo and Yuxin Zhang (Northwestern Polytechnical University, P.R. China).

Fourier Based Adaptive Waveform

Marwa Chafii (Vodafone Chair Mobile Communication Systems & Technische Universitat Dresden, Germany); Jacques Palicot (CentraleSupélec/IETR, France); Rémi Gribonval (INRIA, France); Faouzi Bader (CentraleSupélec, France).

Multi-criteria performance analysis of Faster Than Nyquist signaling

Titouan Petitpied (Thales group & IMS Laboratory, France); Sylvain Traverso (Thales Communications, France); Pascal Chevalier (CNAM, France); Romain Tajan (Bordeaux INP & IMS Laboratory, France); Guillaume Ferré (University of Bordeaux, France).

Improved ZF-like Intra-Tier Precoder for A VFDM Based Two-Tier System

Rugui Yao, Pengfei Jiang, Lukun Yao, Yan Gao, Yuxin Zhang and Xiaoya Zuo (Northwestern Polytechnical University, P.R. China).

Pilot-Based Phase Noise Tracking for Uplink DFT-s-OFDM in 5G

Jean-Christophe Sibel (Mitsubishi Electric R&D Centre Europe & Wireless Communication Systems, France).

11:00-12:30 Session 03: MIMO systems and related Signal Processing

Room Lamennais 2

Chair Amor Nafkha

Hybrid Beamforming for Multi-User MISO Channels with Equal Gain Transmission: A Robust and Spectral Efficient Approach

Mohamed Shehata (INSA Rennes, France); Matthieu Crussière (IETR - Electronics and Telecommunications Research Institute of Rennes (IETR) & INSA - National Institute of Applied Sciences, France); Maryline Héliard (INSA Rennes & IETR Institute of Electronics and Telecommunications of Rennes, France); Patrice Pajusco (TELECOM Bretagne, France).

Quaternion-Valued Multi-User MIMO Transmission via Dual-Polarized Antennas and QLLL Reduction

Sebastian Stern and Robert F.H. Fischer (Ulm University, Germany).

Network Coded Distributed Spatial Modulation for Relay Networks

Amir Shehni and Mark F. Flanagan (University College Dublin, Ireland).

Analysis of Transmission Schemes for Dual-Antenna Terminals in Massive MIMO Systems

Erik L Bengtsson (Sony Mobile, Sweden); Fredrik Rusek (Lund University, Sweden); Peter Karlsson (Sony Mobile Communications, Sweden); Fredrik Tufvesson and Ove Edfors (Lund University, Sweden).

Timing recovery scheme for multi-antenna receiver in presence of doppler shift

Christophe Laot (IMT Atlantique, France); Goulven Eynard (DGA-MI, France).

11:00-12:30 Session 04: Advanced Signal Processing I

Room Lamennais 3

Chair Georgios Ropokis

A Dynamic Constrained Cooperative Localization Algorithm

Chengfei Fan, Liyan Li, Minjian Zhao and Xiaoxiao Xu (Zhejiang University, P.R. China).

Variable Fractional Delay Filter: A Novel Architecture Based on Hermite Interpolation

Ali Zeineddine (CentraleSupélec & TDF, France); Amor Nafkha (CentraleSupélec, France); Christophe Moy (Université de Rennes 1 & IETR, France); Stéphane Paquelet (B-com, France); Pierre - Yves Jezequel (TDF, France).

Generalization and Coefficients Optimization of the Newton Structure

Ali Zeineddine (CentraleSupélec & TDF, France); Stéphane Paquelet (B-com, France); Amor Nafkha (CentraleSupélec, France); Christophe Moy (Université de Rennes 1 & IETR, France); Pierre - Yves Jezequel (TDF, France).

PAPR reduction of post-OFDM waveforms contenders for 5G & Beyond using SLM and TR algorithms

Khaled Tani (CNAM, France); Yahia Medjahdi (ISEP, France); Hmaied Shaiek (CNAM, France); Rafik Zayani (Innov'COM, Sup'Com, Tunisia); Daniel Roviras (CNAM, France).

A low-PAPR low-pilot overhead Reference Signal for the DFT-spread OFDM Modulation

Arnaud Bouttier and Julien Guillet (Mitsubishi Electric R&D Centre Europe, France).

14:00-16:00 Tutorial 1: Terahertz Communications: A Key Enabling Technology for

&

16:30-18:30 **Beyond 5G**, by Josep Miquel Jornet, University at Buffalo, The State University

Room of New York, USA
Amphitheater Maupertuis

14:00-16:00 Tutorial 2: Data sharing in the Internet of Things era, by Angelo Corsaro,

&

16:30-18:30 Chief Technology Officer, ADLINK Technologies Inc.

Room Lamennais 1

14:00-16:00 **Tutorial 3: Quantum Cryptography: Principles, Implementation and Perspectives**, by Philippe Gallion, Télécom ParisTech, Paris, France
&
16:30-18:30
Room Lamennais 2

14:00-16:00 **Tutorial 4: Massive MIMO: A Paradigm Shift for Cellular Communications**
&
by Jacob Hoydis, Nokia Bell Labs-France
16:30-18:30 and Luca Sanguinetti, University of Pisa , Italy
Room Lamennais 3

18:30-20:00 **Social Event: Guided visit to Saint Malo**
20:00-23:00 **Social Event: Welcome Cocktail**

Day 2: Wednesday 27th June 2018

09:00-10:00 **Plenary Talk 2**
Massive MIMO: The Ultimate Wireless Technology! Or is There Something Better?, by Thomas L Marzetta, NYU Tandon School of Engineering, New-York, USA

Room Amphitheatre Maupertuis
Chair: Maria Gabriella Di Benedetto

10:30-12:30 **2nd International Workshop on Main Trends on 5G and Beyond Networks (MT5Gnet) : Session 1**

Room Amphitheatre Maupertuis

Keynote Speaker : Yoann Corre, Siradel

Paper 1 : Block Recursive MIMO Decoding

Aymen Askri; Mohamed Achraf Khsiba; Ghaya Rekaya-Ben Othman.

Paper 2 : A Reduced-Complexity Linear Precoding Strategy for Massive MIMO Base Stations

Amirashkan Farsaei; Alex Alvarado; Frans MJ Willems; Ulf Gustavsson.

10:30-12:30 **Session 5: Estimation/Synchronisation**

Room: Lamennais 1
Chair: Cyrille Siclet

An Effective Preprocessing Scheme for DoA Estimation in Hybrid Antenna Arrays

Maria Trigka, Christos Mavrokefalidis and Kostas Berberidis (University of Patras, Greece).

Closed-Form BER Expression for OFDM with the Effect of TI-ADC's Timing Mismatch

Vo-Trung-Dung Huynh, Nele Noels and Heidi Steendam (Ghent University, Belgium).

Spatially Correlated Sparse MIMO Channel Path Delay Estimation in Scattering Environments

Ali Mohydeen and Pascal Chargé (Université de Nantes, France); Yide Wang (IREENA, Polytech'Nantes, University of Nantes, France); Oussama Bazzi (Lebanese University, Lebanon).

An Accurate Clock Synchronization Method among Moving Objects Based on Maximum Likelihood Estimation

Shinsuke Hara (Osaka City University, Japan); Azusa Danjo (Daihen Corporation, Japan); Kousuke Matsui (Osaka City University, Japan).

A Novel Doppler-based Direction-of-Arrival Estimation Scheme

Patrick Neesen, Michael Meuleners and Christoph Degen (Hochschule Niederrhein University of Applied Sciences, Germany).

Joint Channel Estimation and Detection of SOQPSK Using the PAM Decomposition

Rami Othman (CentraleSupélec/IETR & Zodiac Data Systems, France); Yves Louët (CentraleSupélec, France); Alexandre Skrzypczak (Zodiac Data Systems, France).

10:30-12:30 Session 06: Millimeter Wave and 5G Protocols

Room: Lamennais 2

Chair: Ali Chamas Al Ghouwayel

Geometric Approach in Simultaneous Context Inference, Localization and Mapping using mm-Wave

Ali Yassin (AUB, Lebanon); Youssef Nasser (American University of Beirut, Lebanon); Mariette Awad (AUB, Lebanon).

A system level evaluation of SRTA-PI transmission scheme in the high-speed train use case

Alessandro Grassi, Giuseppe Piro and Gennaro Boggia (Politecnico di Bari, Italy); Dinh-Thuy Phan-Huy (Orange-France Telecom, France).

Selection of high power LEDs for Li-Fi applications

Mostafa Ahfayd (University of Huddersfield & University of Huddersfield, United Kingdom (Great Britain)); Zohaib Ali Farhat, Martin Sibley, Peter Mather and Pavlos Lazaridis (University of Huddersfield, United Kingdom (Great Britain)).

High Data Rate Ultra Reliable and Low Latency Communications in Bursty Interference

Dinh-Thuy Phan-Huy (Orange-France Telecom, France); Pascal Chauveau, Ana Galindo-Serrano and Matha Deghel (Orange Labs, France).

A Blocking Level based Location Verification Scheme in Wireless Sensor Networks

Di Wu, Yinlong Liu, Luping Ma and Pengfei Jing (Institute of Information Engineering, Chinese Academy of Sciences, P.R. China).

Analytical study of 5G NR eMBB co-existence

David Demmer (CEA-Leti, France); Robin Gerzaguët (Univ Rennes, CNRS, IRISA, France); Jean-Baptiste Doré (CEA, France); Didier Le Ruyet (CNAM, France).

10:30-12:30 Session 07: Security/Privacy

Room: Lamennais 3

Chair: Rongpeng Li

Efficient Privacy-Preserving Aggregation Scheme for Data Sets

Ahmed Sherif (Tennessee State University, USA); Ahmad Alsharif and Mohamed M E A Mahmoud (Tennessee Tech University, USA); Mohamed M. Abdallah (Hamad Bin Khalifa University (HBKU), Qatar); Min Song (Michigan Technological University, USA).

Privacy-Preserving Collection of Power Consumption Data for Enhanced AMI Networks

Ahmad Alsharif (Tennessee Tech University, USA); Mahmoud Nabil (Tennessee Technological University, USA); Mohamed M E A Mahmoud (Tennessee Tech University, USA); Mohamed M. Abdallah (Hamad Bin Khalifa University (HBKU), Qatar).

A Community-Based Cooperative Anomaly Detection System by the Synergy of Mobile Sensing and Delay Tolerant Networks

Yoshito Watanabe and Yozo Shoji (National Institute of Information and Communications Technology, Japan).

AsIDPS: Auto-Scaling Intrusion Detection and Prevention System for Cloud

Junchi Xing; Haifeng Zhou; Jinfan Shen and Kai Zhu (Zhejiang University, P.R. China); Yansong Wang (ZTE Corporation, P.R. China); Chunming Wu (College of Computer Science, Zhejiang University, P.R. China); Wei Ruan (Zhejiang University, P.R. China).

Detecting MAC Misbehavior of IEEE 802.11 Devices within Ultra Dense Wi-Fi Networks

M. Shahwaiz Afaqui (Wireless Networks Research Lab, Universitat Oberta de Catalunya, Spain); Stephen Brown (National University of Ireland, Maynooth, Ireland); Ronan Farrell (Maynooth University, Ireland).

Improving Physical Layer Security in Two-Way Relay Systems

Mohanad Obeed and Wessam Mesbah (King Fahd University of Petroleum and Minerals, Saudi Arabia).

14:00-16:00 **MT5Gnet: Session 2**
Room Amphitheatre Maupertuis

Keynote Speaker: Phillippe Sehier, Nokia

Paper 1 : URLLC User Plane Latency Performance in New Radio

Daniel Maaz; Ana Galindo-Serrano; Salah Eddine Elayoubi.

Paper 2 : 5G Contender Waveforms for Low Power Wide Area Networks in a 4G OFDM Framework

Yoann Roth; Jean-Baptiste Doré; Laurent Ros; Vincent Berg.

14:00-16:00 **Tutorial 5: Wireless Radio Access for 5G and Beyond,**
& by Huseyin Arslan, University of South Florida (USA) & Istanbul Medipol
16:30-18:30 University (Turkey)

Room: Lamennais 1

14:00-16:00 **Special Session 01: Terahertz Communications**

Room: Lamennais 2
Chair: Guillaume Ducournau

On the Optimum Demodulation in the Presence of Gaussian Phase Noise

Simon Bicaïs and Jean-Baptiste Doré (CEA, France); Jose Luis Gonzalez Jimenez (CEA LETI, France).

Above-90GHz spectrum and single-carrier waveform as enablers for efficient Tbit/s wireless communications

Jean-Baptiste Doré (CEA, France); Yoann Corre (SIRADEL, France); Simon Bicaïš (CEA, France); Jacques Palicot (CentraleSupélec/IETR, France); Emmanuel Faussurier (ANFR, France); Dimitri Ktéas (CEA, France); Faouzi Bader (CentraleSupélec, France).

Quasi-Optical Schottky Barrier Diode Detector for mmWave/sub-THz Wireless Communication

Muhsin Ali, Robinson Guzmán and Alejandro Rivera-Lavado (Universidad Carlos III de Madrid, Spain); Oleg Cojocari (ACST GmbH, Germany); Luis Enrique García Muñoz and Guillermo Carpintero (Universidad Carlos III de Madrid, Spain).

Towards wireless THz communications: photonic-driven source and transistor-based detector

Stéphane Blin, Alaeddine Abbas, Romain Paquet and Baptiste Chomet (IES Univ Montpellier, France); Arnaud Garnache (CNRS, France); Mikhaël Myara, Philippe Nouvel and Annick Pénarier (IES Univ Montpellier, France); Grégoire Beaudoin (CNRS, France); Isabelle Sagnes (Laboratoire de Photonique et de Nanostructures (CNRS-UPR20), France); Dominique Coquillat (University of Montpellier - CNRS France, France); Wojciech Knap (University Montpellier2 and CNRS, France).

Indoor 100 Gbit/s THz data link in the 300 GHz band using fast photodiodes

Vinay Chinni (IEMN - Lille University, France); Malek Zegaoui (IEMN-CNRS, France); Christophe Coinon (IEMN, France); Xavier Wallart (Institute of Electronics, Microelectronics and Nanotechnology, France); Emilien Peytavit (IEMN, CNRS, France); Jean-François Lampin (Lille University, France); Pascal Sznitgiser (PhLAM, France); Mohamed Zaknoute (Institute of Electronics, Microelectronics and Nanotechnology, France); Guillaume Ducournau (IEMN - Lille University, France).

330 GHz and 600 GHz Schottky Heterodyne Systems for QPSK Terahertz Telecommunication

Jeanne Treuttel (Observatoire de Paris, France); Alain Maestrini (Sorbonne Université, Observatoire de Paris, France); Julien Sarrazin (University of Pierre & Marie Curie UPMC, France); Francois Joint (Sorbonne Université, Observatoire de Paris, Lebanon).

14:00-16:00 **Session 08: Coding and Modulation I**
Room: Lamennais 3
Chair: Yves Louët

Improved Maximum-Likelihood Decoding Using Sparse Parity-Check Matrices
Florian Gensheimer (University of Koblenz-Landau, Germany); Tobias Dietz, Stefan Ruzika, Kira Kraft and Norbert Wehn (University of Kaiserslautern, Germany).

Duo Binary Turbo Coded 256 QAM With Constellation Shaping

Hadji Ahmed (University of Saida & University of Poitiers, Algeria); Boubakar Bouazza (University of Saida Algeria, Algeria); Hervé Boeglen (University of Poitiers XLIM Lab, France); Clency Perrine (Université de Poitiers, France); Nouri Keltouma (University of Tlemcen, Algeria); Chatellier Christian (University of Poitiers, France); Yannis Pousset (Université de Poitiers, France).

Short packet communications: a physical layer comparison for block-fading channels

Alex The Phuong Nguyen (Institut Mines Telecom - Telecom Bretagne, France); Raphael Le Bidan (Telecom Bretagne, France); Frederic Guilloud (Institut Mines Telecom - Telecom Bretagne, France).

On the Equivalence of Two Information Bottleneck-Based Routines Devised for Joint Source-Channel Coding

Shayan Hassanpour, Dirk Wübben and Armin Dekorsy (University of Bremen, Germany).

A Video Output Method for H.265/HEVC Video and Audio IP Transmission and its QoE

Toshiro Nunome (Nagoya Institute of Technology, Japan).

Lasting Successive-Cancellation based Decoders for Multilevel Polar Coded Modulation

Ludovic Chandesris (CEA LETI & ETIS, ENSEA/UCP/CNRS, France); Valentin Savin (CEA LETI, France); David Declercq (ETIS ENSEA/Univ. of Cergy-Pontoise/CNRS, France).

16:30-18:30 MT5Gnet: Session 3
Room Amphitheatre Maupertuis

Keynote Speaker : Christian Gallard, Orange

Paper 1: UPMC Transceiver Complexity Reduction

Majed Saad; Ali Chamas Al Ghouwayel; Hussein Hijazi.

Paper 2: Frequency Domain Zadoff-Chu Sounding Technique for USRPs

Edward Kassem; Roman Marsalek; Jiri Blumenstein.

16:30-18:30 Session 09: VLC & Millimeter Wave
Room: Lamennais 2
Chair: TBD

Blockage modeling for inter-layer UAVs Communications in Urban Environments

Zhi Yang, Lai Zhou, Guangyue Zhao and Shidong Zhou (Tsinghua University, P.R. China).

Hybrid RF/VLC Systems under QoS Constraints

Marwan Hammouda and Sami Akin (Leibniz Universität Hannover, Germany); Anna Maria Vegni (Universita Roma 3, Italy); Harald Haas (The University of Edinburgh, United Kingdom (Great Britain)); Jürgen Peissig (Leibniz Universität Hannover, Germany).

Efficient Scheduling for Planned Robot Networks

Farid Benbadis (Thales Communications, France); Hicham Khalife and Catherine Lamy-Bergot (Thales Communications & Security, France).

3D Localization and Mapping using mm-Wave: What are the Opportunities in Vehicular and Indoor Environments?

Ali Yassin (AUB, Lebanon); Yoann Corre (SIRADEL, France); Yves Lostanlen (University of Toronto, Canada); Gregory Gougeon (SIRADEL, France); Youssef Nasser (American University of Beirut, Lebanon).

Energy-Efficient Adaptive MIMO-VLC Technique for Indoor LiFi Applications

Iman Tavakkolnia (University of Edinburgh & LiFi Research and Development Centre, United Kingdom (Great Britain)); Cheng Chen and Rui Bian (University of Edinburgh, United Kingdom (Great Britain)); Harald Haas (The University of Edinburgh, United Kingdom (Great Britain)).

Outdoor Performance Comparison of Optical Wireless and Millimeter Wave

Dominic Schulz and Julian Hohmann (Fraunhofer Heinrich Hertz Institute, Germany); Jonas Hilt (Fraunhofer Institute for Telecommunication, HHI, Germany); Peter Hellwig (Fraunhofer Heinrich Hertz Institute, Germany); Volker Jungnickel (Fraunhofer Heinrich Hertz Institute & Technische Universität Berlin, Germany).

16:30-18:30 Session 10: Coding and modulation II

Room: Lamennais 3

Chair: Dirk Wübben

Alarm Prediction in LTE Networks

Simon Holmbacka (Elisa Oyj & Åbo Akademi University, Finland); Jarno Niemelä (Elisa Corporation, Finland); Henri Karikallio (Elisa Oyj, Finland); Karri Sunila (Elisa, Finland); Ilkka Raiskinen, Eero Siivola, Juho Piironen and Tuomas Sivula (Enne Analytics, Finland).

Artificial-Noise-Aided Secure Transmission over Finite-Input Intersymbol Interference Channels

Serdar Hanoglu (Bilkent University & Aselsan Inc., Turkey); Sina Rezaei Aghdam (Chalmers University of Technology, Sweden); Tolga M. Duman (Bilkent University, Turkey).

Optimized Short-Length Rate-Adaptive LDPC Codes for Slepian-Wolf Source Coding

Fangping Ye (IMT Atlantique & Telecom Bretagne, France); Zeina Mheich (University of Surrey, United Kingdom (Great Britain)); Elsa Dupraz and Karine Amis (IMT Atlantique, France).

Partition of Random Items: Tradeoff between Binning Utility and Meta Information Leakage

Farhang Bayat and Shuangqing Wei (Louisiana State University, USA).

20:00

GALA DINNER, Best papers Awards & Best Demo Award Ceremony

Day 3: Thursday 28th June 2018

09:00-10:00 **Plenary talk 3**
Learning from the sky: Autonomous flying access networks for beyond 5G, by David Gesbert, EURECOM, Sophia Antipolis, France

Room: Amphitheatre Maupertuis
Chair: Youssef Nasser

10:30-12:30 **Session 11: Massive MIMO**
Room: Ampitheater Maupertuis
Chair: Hideki Ochiai

Enhancing massive MIMO: A new approach for Uplink training based on heterogeneous coherence times

Salah Eddine Hajri (Laboratoire de Signaux et Systèmes (L2S, CNRS), CentraleSupélec, France); Mohamad Assaad (CentraleSupélec, France); Maialen Larranaga (CentraleSupélec, France).

Nonlinear Precoding for Phase-Quantized Constant-Envelope Massive MU-MIMO-OFDM

Sven Jacobsson (Ericsson Research & Chalmers University of Technology, Sweden); Oscar Castañeda and Charles Jeon (Cornell University, USA); Giuseppe Durisi (Chalmers University of Technology, Sweden); Christoph Studer (Cornell University, USA).

Analysis and Modelling of Massive MIMO Mobility Channels

Henry Brice, Evangelos Mellios and Mark Beach (University of Bristol, United Kingdom (Great Britain)).

Constant modulus hybrid beamforming for multi-user systems in the presence of blockers

Reda Bekkar (CEA LETI, France); Benoit Miscopein and Serge Bories (CEA, France); Laurent Ros (GIPSA-lab & INPG & CNRS organisation, France); Cyrille Siclet (GIPSA-Lab, France).

DFT-based Channel Estimation Techniques for Massive MIMO Systems

Hayder AL-Salihi (King's College London, Iraq); Mohammad Reza Nakhai (King's College London, United Kingdom (Great Britain)); Tuan Anh Le (Middlesex University, United Kingdom (Great Britain)).

Performance Comparison of Low-Complexity MIMO System with Matched-Filter Detector and Interference Cancellation

Yuto Hama and Hideki Ochiai (Yokohama National University, Japan).

10:30-12:30 **Session 12: SDN/NFV/Cloud**
Room: Lamennais 1
Chair: Hamid Aghvami

Delay Sensitive Virtual Network Function Placement and Routing

Racha Gouareb, Hamid Aghvami and Vasilis Friderikos (King's College London, United Kingdom (Great Britain)).

The Next Generation Platform as a Service - Cloudifying Service Deployments in Telco-Operators Infrastructure

Angelos Mimidis Kentis (DTU, Denmark); Eder Ollora Zaballa and Jose Soler (Technical University of Denmark, Denmark); Bessem Sayadi (Nokia Bell-Labs, France); Laurent Rouillet (Alcatel-Lucent Bell Labs, France); Steven Van Rossem (Ghent University & iMinds - IBCN, Belgium); Sébastien Pinnerre, Michele Paolino and Daniel Raho (Virtual Open Systems SAS, France); Xuan Du (OnApp, United Kingdom (Great Britain)); Julian Chesterfield (Onapp, United Kingdom (Great Britain)); Michail Flouris (OnApp, United Kingdom (Great Britain)); Leonardo Mariani (University of Milano Bicocca, Italy); Oliviero Riganelli (University of Camerino, Italy); Marco Mobilio (University of Milano-Bicoca, Italy); Aurora Ramos (Atos, Spain); Ignacio Labrador Pavon (ATOS, Spain); Adam Broadbent (British Telecom, United Kingdom (Great Britain)); Paul Veitch (BT, United Kingdom (Great Britain)); Maurice Zembra (Vertical M2M, France).

Deterministic Scheduling of Periodic Messages for Cloud RAN

Dominique Barth (UVSQ, France); Maël Guiraud (University of Versailles-Saint-Quentin-en-Yvelines, France); Brice Leclerc (Nokia, France); Olivier Marce (Nokia Bell Labs, France); Yann Strozecki (University of Versailles-Saint-Quentin-en-Yvelines, France).

Virtual Network Function Service Chaining Anomaly Detection

Agathe Blaise (UPMC Sorbonne Universités, Thales Communications and Security, France); Stan Wong (UbiXpace Ltd., United Kingdom (Great Britain)); Hamid Aghvami (King's College London, United Kingdom (Great Britain)).

Cell-Orch: Towards End-to-End Orchestration of Multi-domain 5G Networks

Joaquin Chung and Nam Pho (Georgia Institute of Technology, USA); Ivan Armuelles (University of Panama & Faculty of Informatics, Electronics and Communications, Panama).

A Hierarchical Approach to Handle Inter-domain Mobility in SDN-based Networks using Mobile IP

Modhawi Alotaibi (University of Ottawa & Taibah University, Canada); Amiya Nayak (SITE, University of Ottawa, Canada).

10:30-12:30 Special Session 2: Non Orthogonal Multiple Access Techniques for 5G systems

Room: Lamennais 2

Chair: Catherine Douillard

Capacity bounds of Low-Dense NOMA over Rayleigh fading channels without CSI

Mai T. P. Le, Giuseppe Caso, Luca De Nardis, Alireza Mohammadpour and Gabriele Tucciaroni (Sapienza University of Rome, Italy); Maria Gabriella Di Benedetto (Sapienza Università di Roma, Italy).

Combination of NOMA and MIMO: Concept and Experimental Trials

Anass Benjebbour and Yoshihisa Kishiyama (NTT DOCOMO, INC., Japan).

Advanced Resource Allocation Technique for a Fair Downlink Non-Orthogonal Multiple Access System

Marie-Rita Hojeij (Holy-Spirit University of Kaslik, Lebanon); Charbel Abdel Nour (IMT Atlantique, France); Joumana Farah (Lebanese University, Faculty of Engineering, Lebanon); Catherine Douillard (IMT Atlantique, France).

Code Domain Non Orthogonal Multiple Access versus Aloha: a simulation based study

Diane Duchemin (University of Lyon, France); Jean-Marie Gorce (INSA-Lyon & CITI, Inria, France); Claire Goursaud (INSA-Lyon, France).

10:30-12:30 Special Session 03: Advances on Digital Pre-distortion and Crest Factor Reduction

Room: Lamennais 3

Chair Geneviève B. Baudoïn and Roman Maršálek

Evaluation of PAPR reduction based on block interleaving method in presence of nonlinear PA model with memory

Younes Aimer (University of Poitiers & University of Tahar Moulay, France); Boubakar Seddik Bouazza (University of Tahar Moulay, Algeria); Smail Bachir (University de Poitiers, France); Claude Duvanaud (XLIM-SIC, Université de Poitiers, IUT, Angoulême, France).

An Analysis of Adaptive Digital Predistortion Algorithms in RF Power Amplifier

Han Le Duc (Polytech Nantes & Telerad, France); Bruno Feuvrie (University of Nantes, France); Matthieu Pastore (Telerad, France); Yide Wang (IREENA, Polytech'Nantes, university of Nantes, France).

Performance Analysis of a Multiplex With Different PAPR Reduction Techniques

Ali Cheaito (INSA de Rennes, France); Yves Louët (SUPELEC-Rennes Campus, France).

Evaluation of a DPD approach for multi standard applications

Houssam Hamoud (XLIM Limoges, France); Tibault Reveyrand (XLIM, France); Damien Gapillout (AMCAD Engineering, France); Sébastien Mons (XLIM, France); Edouard Ngoya (Xlim Laboratory - University Limoges, France).

Digital Predistorter with Real-Valued Feedback Employing Forward Model Estimation

Jan Kral, Tomas Gotthans, Roman Marsalek and Michal Harvanek (Brno University of Technology, Czech Republic).

Digital predistorter with Hammerstein structure employing statistical adaptation of nonlinear component

Roman Marsalek and Tomas Gotthans (Brno University of Technology, Czech Republic).

14:00-16:00 & 16:30-18:30 Tutorial 6: Low Power Wide Area Networks for the Internet of Things: Framework, Optimization, and Challenges of LoRaWAN and NB-IoT,

by Samer Lahoud and Melhem El Helou, ESIB, Saint Joseph University of Beirut, Lebanon

Room: Amphitheatre Maupertuis

14:00-16:00 **Session 13: D2D and Machine Type Communications**
Room: Lamennais 1
Chair: Faouzi Bader

Latency Efficient Request Access Rate for Congestion Reduction in LTE MTC
Rémi Bonnefoi (CentraleSupélec & IETR, France); Tarcisio F. Maciel (Federal University of Ceará, Brazil); Carlos Estêvão R. Fernandes (Federal University of Ceará & Wireless Telecom Research Group (GTEL), Brazil).

On the Capacity of D2D Social Networks With Fractal Communications
Ying Chen, Rongpeng Li and Zhifeng Zhao (Zhejiang University, P.R. China); Honggang Zhang (Zhejiang University & Université Européenne de Bretagne (UEB) and Supelec, P.R. China).

Massive Machine Type Communications Uplink Traffic: Impact of Beamforming at the Base Station
Mathieu Goutay (INSA Lyon, France); Leonardo S. Cardoso (Université de Lyon & INRIA, INSA-Lyon, CITI-INRIA, France); Claire Goursaud (INSA-Lyon, France).

Full-Duplex or Half-Duplex D2D Mode? Closed Form Expression of the Optimal Power Allocation
Hussein Chour (CentraleSupélec & Lebanese University, France); Youssef Nasser (American University of Beirut, Lebanon); Oussama Bazzi (Lebanese University, Lebanon); Faouzi Bader (CentraleSupélec, France).

Turning Competition Onto Cooperation in D2D Communications: A Quitting Game Perspective
Safaa Driouech and Essaid Sabir (ENSEM, Hassan II University of Casablanca, Morocco).

Multiband Neighbor Discovery Protocols for Millimeter Waves Ad Hoc Networks
Davi da Silva Brilhante (Universidade Federal do Rio de Janeiro, Brazil); José F. de Rezende (Federal University of Rio de Janeiro, Brazil).

14:00-16:00 **Session 14: Internet Of Things (IoT)**
Room: Lamennais 2
Chair: Patrick Maillé

Improving LoRa Network Capacity Using Multiple Spreading Factor Configurations
Dimitrios Zorbas (University of Piraeus, Greece); Georgios Z. Papadopoulos and Patrick Maillé (IMT Atlantique, France); Nicolas Montavont (Institut Mines Telecom / IMT Atlantique, France); Christos Douligeris (University of Piraeus, Greece).

Node-based optimization of LoRa transmissions with Multi-Armed Bandit algorithms
Raouf Kerkouche (Institute for Research in Computer Science and Automation, France); Reda Alami, Raphaël Féraud and Nadège Varsier (Orange Labs, France); Patrick Maillé (IMT Atlantique, France).

Statistical Uplink Dimensioning in Licensed Cellular Low Power IoT Network
Lina Mroueh (Institut Supérieur d'Electronique de Paris, France); Yi Yu and Michel Terré (CNAM, France); Philippe Martins (Telecom Paristech, France).

Overview and Measurement of Mobility in DASH7

Wael Ayoub (IETR lab & INSA RENNES, France); Fabienne Nouvel (INSA IETR RENNES, France); Abed Ellatif Samhat (Lebanese University, Lebanon); Jean-Christophe Prévotet (INSA, France); Mohamad Mroue (Lebanese University, Lebanon).

Attribute Based Information Centric Networking for IoT Applications

Izuru Sato (Fujitsu Labs. LTD., Japan); Fujii Yasuki (Fujitsu Laboratories, Japan); Toshihiko Kurita (Fujitsu Laboratories Ltd., Japan); Junichi Suga (Fujitsu Laboratories LTD., Japan); Akira Itoh (Fujitsu Laboratories Limited, Japan); Ken-ichi Fukuda (Fujitsu Laboratories ltd., Japan).

Energy/Reliability Trade-off of LoRa Communications over Fading Channels

Xuan-Chien Le (INRIA, University of Rennes 1, France); Baptiste Vrigneau (University of Rennes 1 & IRISA Granit, France); Matthieu Gautier (University of Rennes 1, IRISA, France); Malo Mabon (IRISA Granit, France); Olivier Berder (University of Rennes 1 / IRISA, France).

14:00-16:00 Session 15: Energy Management

Room: Lamennais 3

Chair: Nicolas Montavont

HQuad: Statistics of Hamiltonian Cycles in Wireless Rechargeable Sensor Networks

Yanmao Man (University of Arizona, USA); Jing Deng (University of North Carolina at Greensboro, USA); George T Amariuca (Kansas State University, USA); Shuangqing Wei (Louisiana State University, USA).

Two Node-Disjoint Paths Routing for Energy-Efficiency and Network Reliability

Rihab Maâloul (Laboratory of Technology and Smart Systems (LT2S), Digital Research Center of SFAX (CRNS), Tunisia); Raouia Taktak (Sfax University, France); Lamia Chaari Fourati (Institut supérieur d'informatique et multimédia de sfax, Tunisia); Bernard Cousin (University of Rennes 1 & IRISA Research Laboratory, France).

A Real-World Evaluation of Energy Budget Estimation Algorithms for Autonomous Long Range IoT Nodes

Philip-Dylan Gleonec (Univ Rennes, CNRS, IRISA & Wi6labs, France); Jeremy Ardouin (Wi6labs, France); Matthieu Gautier and Olivier Berder (Univ Rennes, CNRS, IRISA).

Energy efficient bandwidth and power allocation for type-I HARQ under the Rician channel

Xavier Leturc (Thales Communications & Security & Télécom ParisTech, France); Christophe J. Le Martret (Thales Communications & Security & Signal Processing and Multimedia Dept., France); Philippe Ciblat (Telecom ParisTech, France).

Joint Resource Scheduling and Computation Offloading for Energy Harvesting Communications

Ibrahim Fawaz and Mireille Sarkiss (CEA LIST, France); Philippe Ciblat (Telecom ParisTech, France).

Cooperative Beamforming Exploiting Energy Recycling

George A Ropokis (CONNECT, Trinity College Dublin, Ireland); Nicola Marchetti (Trinity College Dublin, Ireland); Luiz DaSilva (Trinity College & Trinity College Dublin, Ireland).

16:30-18:30 Session 16: Advanced Signal Processing II

Room: Lamennais 1

Chair: Jean-Baptiste Doré

Generalized Least Squares Based Channel Estimation for High Data Rate FBMC-OQAM

Vibhutesh Kumar Singh, Mark F. Flanagan and Barry G Cardiff (University College Dublin, Ireland).

On multiplicative update with forgetting factor adaptive step size for least mean-square algorithms

Robin Gerzaguet (Univ Rennes, CNRS, IRISA, France); Laurent Ros (GIPSA-lab & INPG & CNRS organisation, France); Fabrice Belvèze (ST-Microelectronics, France); Jean-Marc Brossier (GIPSA-lab/DIS - BP 46 Saint-Martin-d'Hères, France).

Tone Reservation Based Gaussian Clipping and Filtering for OFDM PAPR Mitigation

Yves Louët (CentraleSupélec, France); Jacques Palicot (CentraleSupélec/IETR, France); Desire Guel (Nokia Networks).

Cyclic Autocorrelation based Spectrum Sensing: Theoretical Derivation Framework

Vincent Gouldieff (Zodiac Data Systems, France); Amor Nafkha (CentraleSupélec, France); Nicolas Grollier (IMT Atlantique & Lab-STICC, France); Jacques Palicot (CentraleSupélec/IETR, France); Steredenn Daumont (Zodiac Data Systems, France).

Performance of Linear and Widely Linear Equalizers for FBMC/OQAM modulation

Hayfa Fhima (Conservatoire National des arts et Metiers & Ecole Supérieure des Communications de Tunis, France); Bruno Chang (Federal University of Technology - Paraná, Brazil); Rafik Zayani (Innov'COM, Sup'Com, Tunisia); Hmaied Shaiek (CNAM, France); Daniel Roviras (CNAM, France); Ridha Bouallegue (Innov'COM @ Sup'Com., Tunisia).

Frequency Estimation of Multiple Components Using Chinese Remainder Theorem

Mohamad Saab, Youssef Nasser and Karim Youssef Kabalan (American University of Beirut, Lebanon).

16:30-18:30 Session 17: Satellite Communications**Room:** Lamennais 2**Chair:** Steredenn Daumont**Fair Carrier Allocation for 5G Integrated Satellite-Terrestrial Backhaul Networks**

Eva Lagunas and Symeon Chatzinotas (University of Luxembourg, Luxembourg); Björn Ottersten (University of Luxembourg, Luxembourg).

Performance Analysis of CoAP under Satellite Link Disruption

Domenico Giotti (LIST, Luxembourg); Luca Lamorte and Ridha Soua (University of Luxembourg, Luxembourg); Maria Rita Palattella (Luxembourg Institute of Science and Technology (LIST), Luxembourg); Thomas Engel (University of Luxembourg, Luxembourg).

Comparison of signal predistortion schemes based on the contraction mapping for satellite communications with channel identification

Nicolas Alibert (IMT Atlantique, Lab-STICC, UBL & Mitsubishi Electric R&D Centre Europe, France); Karine Amis and Charlotte Langlais (IMT Atlantique, France); Damien Castelain (Mitsubishi Electric R&D Centre Europe, France).

Receiver synchronisation based on a single dummy frame for DVB-S2/S2X beam hopping systems

Xavier Giraud (Novacom, France); Guy Lesthievant and Hugo Méric (CNES, France).

16:30-18:30 Session 18: Antennas, Test & Measurements**Room:** Lamennais 3**Chair:** Nabil Zaraneh**Multi-Band Hand of God Antenna for Wireless Communications**

Mervat Madi and Karim Youssef Kabalan (American University of Beirut, Lebanon).

Experimental Validation of Robust Beam Tracking in a NLoS Indoor Environment

Tobias Kadur (Technische Universität Dresden, Germany); Hsiao-Lan Chiang (Technical University of Dresden, Germany); Gerhard Fettweis (Technische Universität Dresden, Germany).

Performance Prediction of Wireless Multi-Hop Networks Using Stored Data Sets for Persons during Exercises

Shinsuke Hara (Osaka City University, Japan); Ryusuke Miyamoto (Meiji University & School of Science and Technology, Japan); Hiroyuki Yomo (Kansai University, Japan); Hirofumi Ogura (Osaka City University, Japan).

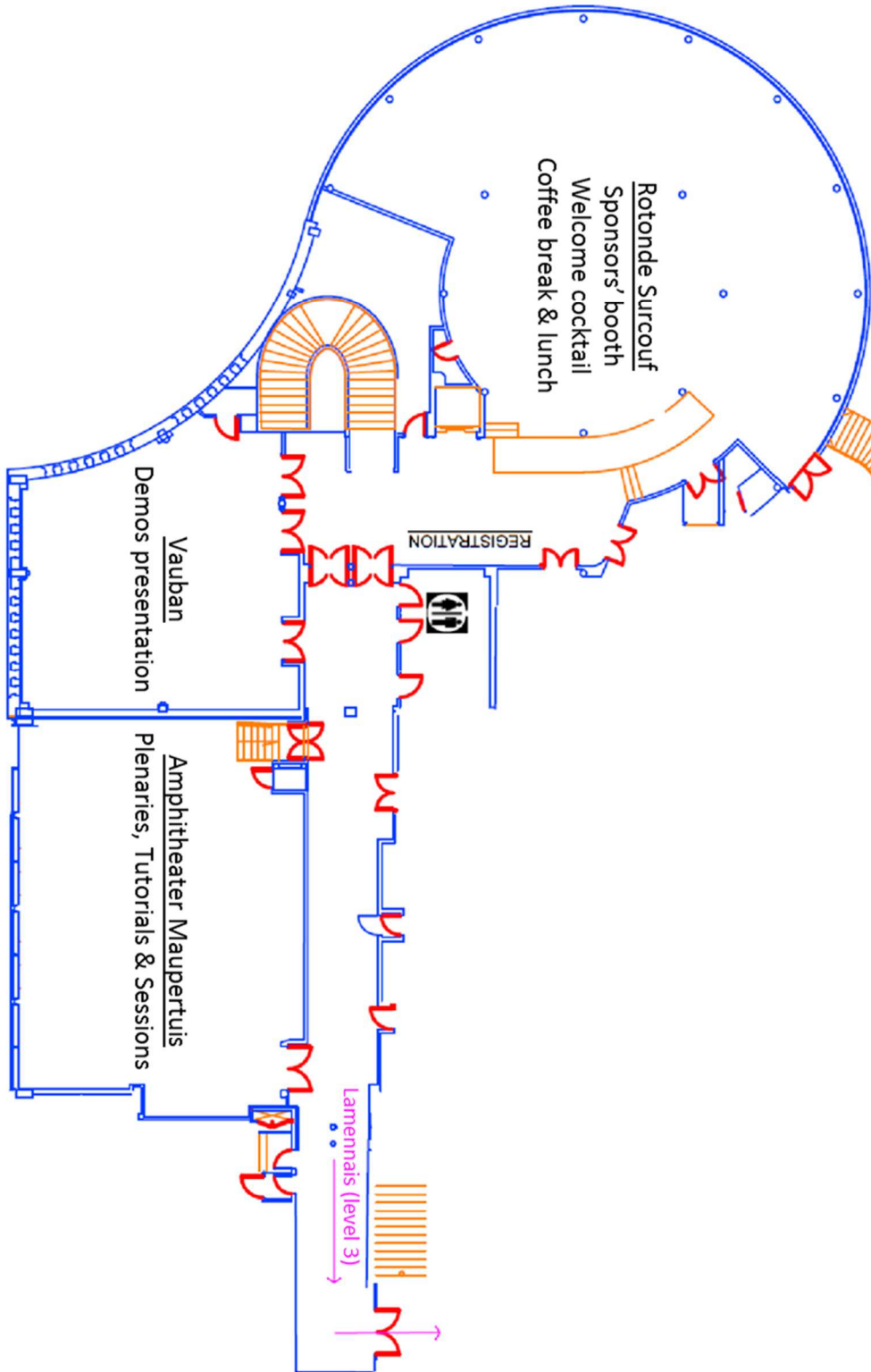
Analytical and Experimental study for LoRa Modulation

Hussein Mroue (University of Nantes, France); Abbass Nasser (Ensta-Bretagne, France & AUCE, Lebanon); Benoit Parrein and Sofiane Hamrioui (University of Nantes, France); Eduardo Motta Cruz (Université de Nantes IETR, France); Gilles Rouyer (SPIE City Networks, France).

Low cost connected and autonomous rain gauge for real time rainfall monitoring in Dakar

Abdoulaye Kama (Université Cheikh Anta Diop de Dakar, Senegal); Moussa Diallo (UCAD, Senegal); Mamadou Drame (UCAD/FST, Senegal).

Conference Rooms –Level 2



Conference Rooms –Level 3

