

## Detailed Technical Program

### Day 1: Tuesday 26<sup>th</sup> 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  
Carlos Bader, Maria Gabriella Di Benedetto & Youssef Nasser Co TPC 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** Carlos 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** TBD

**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 Universität 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 Hélaré (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)

**14:00-18:30 Tutorial 1: Terahertz Communications: A Key Enabling Technology for Beyond 5G,** by Josep Miquel Jornet, University at Buffalo, The State University of New York, USA

**Room** Amphitheater Maupertuis

**14:00-18:30 Tutorial 2: Data sharing in the Internet of Things era,** by Angelo Corsaro, Chief Technology Officer, ADLINK Technologies Inc.

**Room** Lamennais 1

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

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

**18:30-20:00** Social Event: Guided visit to Saint Malo  
**20:00-22:00** Social Event: Welcome Cocktail

## Day 2: Wednesday 27<sup>th</sup> 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  
**Chairs** TBD

**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:** TBD

**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:** TBD

**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 Gerzaguet (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:** TBD

**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

**Chairs** TBD

**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

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

**Room:** Lamennais 1

**14:00-16:00 Special Session 01: Terahertz Communications**  
**Room:** Lamennais 2  
**Chair:** Ali Chamas Al Ghouwayel and 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 Bicaïs (CEA, France); Jacques Palicot (CentraleSupélec/IETR, France); Emmanuel Fausurier (ANFR, France); Dimitri Kténas (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 Abbes, 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 Zaknune (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  
**Chairs** TBD

**Keynote Speaker :** Christian Gallard, Orange

**Paper 1: UFMC 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:** TBD

**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 28<sup>th</sup> 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:** Amphitheater Maupertuis**Chair:** TBD**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 &amp; 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 &amp; INPG &amp; 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:** TBD**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 Tucciarone (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. Baudoin 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)

**14:00-18:30 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:** TBD

**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:** TBD

**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:** TBD

**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:** TBD

**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 &amp; Mitsubishi Electric R&amp;D Centre Europe, France); Karine Amis and Charlotte Langlais (IMT Atlantique, France); Damien Castelain (Mitsubishi Electric R&amp;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 &amp; School of Science and Technology, Japan); Hiroyuki Yomo (Kansai University, Japan); Hirofumi Ogura (Osaka City University, Japan)

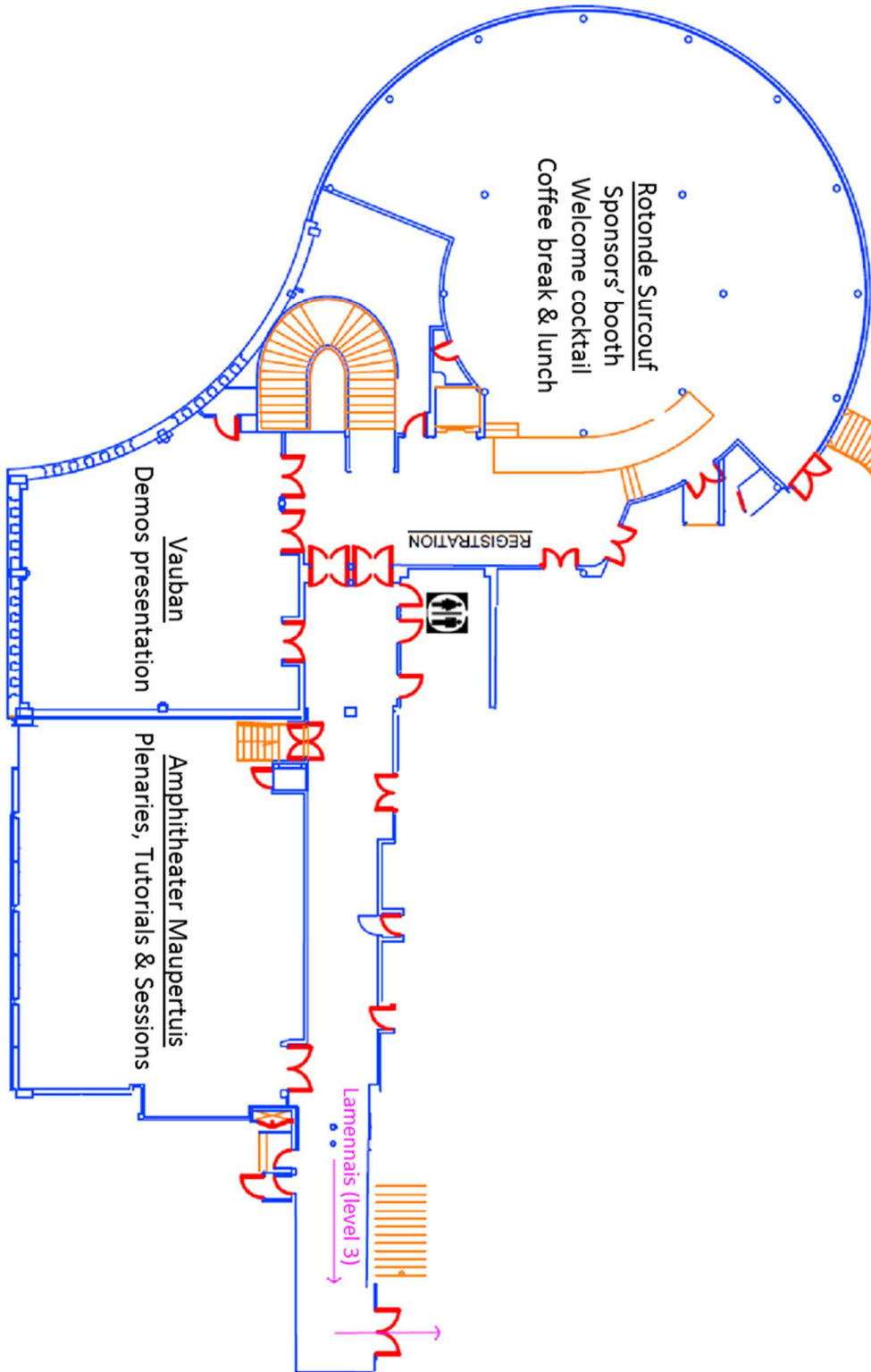
**Analytical and Experimental study for LoRa Modulation**

Hussein Mroue (University of Nantes, France); Abbass Nasser (Ensta-Bretagne, France &amp; 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

