

Séminaire ICI : Marwa Chafii

14 Décembre 2017, 14:00 – 15:30

Titre du séminaire et oratrice

Low Power Waveforms for Future Wireless Communications.

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Date et lieu

Jeudi 14 décembre 2017, 14h00.

[ENSEA](#), salle 384.

Abstract

One of the most challenging issues of wireless communications is energy consumption. On one hand, cellular communications suffer from intensive energy consumption, particularly at the power amplifier level. This may represent more than 60% of the energy consumption of an LTE macro base-station. On the other hand, a massive deployment of Internet of Things (IoT) devices requires high energy efficiency to reduce the maintenance cost and to extend their autonomy and utility. In this talk, a new low power waveform is presented, namely, adaptive wavelet packet modulation (AWPM), as an alternative waveform with respect to the conventional multi-carrier and single carrier modulations. Thanks to its ability to adapt the time-frequency tiling of the modulated signal to the frequency-selective fading channel, the proposed scheme achieves a good trade-off between peak-to-average power ratio and bit error rate. Moreover, we will show how the index modulation, which is an efficient way to represent the data information, leads to a significant energy efficiency improvement in IoT communications.

Bio

[Marwa Chafii](#) is currently a Postdoc researcher with the Communication and Electronic Embedded Systems (SCEE) Research Team, CentraleSupélec, Rennes, France. She received a Ph.D. degree in Telecommunications from CentraleSupélec. In 2013, she received a master's degree in advanced wireless communication systems from CentraleSupélec, Paris, France, and the Engineering Diploma degree in telecommunications from the Institut National des Postes et Télécommunications, Morocco. From 2014 to 2016, she visited Oxford University and the University of York in the UK, Yokohama National University in Japan, and the Poznan University of Technology, Poland. Her research interests include advanced waveforms for multicarrier systems and the peak-to-average power ratio reduction problem.

