

## Tutorial: 'Introduction to Adaptive Wireless Circuits and Systems'

**Data:** mércores, 11 setembro, 2019 - 11:00 -  
14:00

venres, 13 setembro, 2019 - 11:00 - 14:00

**Lugar:** CITIUS Assembly  
Hall

**Poñente(s):** Mohammad Abu Khater (Princess Sumaya University for Technology - Amman,  
Jordan)

**Idioma:** Inglés

**Streaming:** Por confirmar



With nearly all technological advancements involve wireless links in their backbones, the efficiency of classical fixed RF systems is in question. This is further exacerbated with the crowding of the spectrum due to recent trends such as 5G and IoT systems, pushing wireless links to carry more data than their wired counterparts do. Adaptive wireless devices are a promising solution since they have the ability to adjust their response based on the circumstances. This enables optimizing the spectral usage and the efficiency of the overall wireless transceiver. This tutorial targets fundamental understanding of theory and implementation of adaptive and tunable wireless circuits and systems. Various tuning technologies will be introduced along with their circuits and trade-offs. This includes solid-state varactors, MEMS, ferroelectric and ferromagnetic devices. Tunable-adaptive circuits for RF

filters, Power Amplifiers (PAs), and Low- Noise Amplifiers (LNAs) are also discussed in comprehensive detail, including tuning range, linearity, and power concerns. A few examples showing system-level implementation of such tunable circuits are also presented. CAD simulation examples are utilized to give the participants first-hand experience in wireless adaptive circuits and systems design.

#### **About the speaker**

Mohammad Abu Khater is an assistant professor at Princess Sumaya University for Technology, Amman-Jordan. He received his PhD from Purdue University in 2015. His current research interests are focused on the areas of adaptive wireless devices, filter control circuits and systems, and multi-functional RF devices. His industrial experience span Intel's circuit research labs and Qualcomm RF technology.

During his research and industrial experience, Dr. Abu Khater designed various proof-of-concept PCBs for applications spanning RF, high-speed digital signals, power supplies, and data converters. His designs covered frequencies up to 40 GHz, which require meticulous layout strategies.

Dr. Abu Khater is an IEEE senior member. In 2012, he received the excellence in teaching award from the college of engineering at Purdue University. He also received the Fulbright graduate scholarship in 2007. He was awarded a best demo award in the radio wireless week in 2015 for his work on adaptive jammer suppression.