Seminar Title: Highly-adaptive and multi-functional RF passive filtering components for enhanced radio spectrum access

Time: 3:00-4:00 PM, Friday, October 14, 2016
Location: ECE 101

Speaker:
Dimitra Psychogiou
University of Colorado at Boulder

Abstract:

As the frequency radio spectrum becomes more and more congest the need for highly-versatile RF transceivers with multi-functional operability and immunity to undesired interference and noise is increasing rapidly. RF filters with flexible transfer function will be key enabling technologies of these systems. They will result in reduced complexity transceivers and set the grounds to new sets of applications. However, their realization imposes new requirements in terms of design and integration schemes. Within the scope of this seminar, recent research findings in reconfigurable RF filters will be discussed in terms of the aforementioned challenges with a particular emphasis on advanced synthesis methods and integration technologies. We’ll first focus on tuning concepts and realization approaches that facilitate the development of tunable cavity-based RF filters for frequencies as low as 100 MHz to as high as 100 GHz. Afterwards, we’ll discuss the actualization of mobile form-factor RF filters for wireless communication systems using hybrid integration schemes that exploit acoustic-wave and electromagnetic-wave principles. Advanced filter synthesis and RF filter architectures with multifunctional operability will also be presented.

Speaker Bio:

Dimitra Psychogiou received the Dipl. Eng. degree in Electrical and Computer Engineering from the University of Patras, Patras, Greece, in 2008, and the Ph.D. degree in Electrical Engineering from the Swiss Federal Institute of Technology (ETH) Zürich, Switzerland, in 2013. From 2013 to 2016, she was a Research Scientist at Purdue University. She is now an Assistant Professor of Electrical, Computer and Energy Engineering at the University of Colorado at Boulder, Boulder, USA. Her research focuses on RF design and characterization of reconfigurable microwave and millimeter-wave passive components, RF-MEMS, acoustic wave resonator based filters, tunable filter synthesis and frequency-agile antennas. Dr. Psychogiou is currently an Associate Editor for the IET Microwaves, Antennas, and Propagation journal and a reviewer of several IEEE and IET journals.