UCF DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

# Spring 2016 Seminar Series

## ADAPTIVE TRANSFER FUNCTION RF FILTERS FOR EMERGING WIRELESS SYSTEMS

TUESDAY FEBRUARY 2, 2016

1:00 PM – HEC 356

Modern trends towards universal wireless systems call for highly-versatile RF transceivers with multi-functional operability to enable flexible radio access. In these systems, tunable RF/microwave filters with reconfigurable transfer function are highly desirable to facilitate adaptive preselection of the desired signal of interest and suppression of the undesired interference and noise. Whereas flexible RF filters pave the way to reduced complexity RF transceivers and set the grounds to new sets of applications, new requirements need to be met in terms of design, tunability principles 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 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.


### DR. DIMITRA PSYCHOGIOU

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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. In 2008, she joined the Wireless Communication Research Group (WiCR), University of Loughborough, Loughborough, U.K., as a Research Assistant. From 2009 to 2013, she was a Teaching and Research Assistant with the Laboratory of Electromagnetic Fields and Microwave Electronics (IFH), ETH Zürich. Since 2013, she has been with Purdue University, where she is currently a Senior Research Scientist at the Department of Electrical and Computer Engineering, West Lafayette, IN, USA. Furthermore, she has been serving as an Associate Editor for the IET Microwaves, Antennas and Propagation since 2015. She has been a reviewer of several IEEE, IET, journals and she is being serving as a member of the Technical Review Board for several IEEE and EuMA conferences. Her main research interests include RF design and characterization of reconfigurable microwave and millimeter-wave passive components, acoustic-wave resonator based filters, tunable filter synthesis and frequency-agile antennas.