IDCOM Lunchtime Seminar

Monday 15 September 1.00pm

Seminar Room 3.01

Alexander Graham Bell Building, King's Buildings, EH9 3JL

Prof Zoya Popovic

University of Colorado, Boulder, U.S.A.

High-Efficiency Microwave Transmitters
for High Peak-to-Average Ratio Communication and Radar Signals

Abstract. This talk will present an overview of the activities in the microwave group at the University of Colorado, Boulder, followed by a more detailed discussion of a few specific projects related to high-efficiency RF power amplifiers (PAs) and transmitters. Design and implementation of PAs with efficiencies greater than 65% and power levels from 3kW to 5W at frequencies from 450MHz to 10GHz, respectively, will be presented. The amplifiers are components of radar and communication systems for various signal types, from constant envelope narrowband pulsed waveforms for wind profiling UHF radar, to high peak-to-average ratio (PAR) high-bandwidth communication and radar signals in S (~2GHz) and X (`10GHz) bands. While the UHF PAs are implemented with low-cost LDMOS transistors, S-band hybrid PAs with 10W output power and PAE>80% and X-band 10-W MMIC PAs with PAE>60% are implemented in GaN technologies. The amplifiers are integrated into transmitters that use different architectures to maintain efficiency for varying amplitude signals, such as supply modulation, outphasing and harmonic injection.

Biography:. Zoya Popovic is a Distinguished Professor and the Hudson Moore Jr. Endowed Chair of Electrical Engineering at the University of Colorado. She obtained her Dipl.Ing. degree at the University of Belgrade, Serbia, and her Ph.D. at Caltech. She has graduated 50 PhDs and currently advises 15 doctoral students in various areas of microwave engineering. She is a Fellow of the IEEE and the recipient of two IEEE MTT Microwave Prizes for best journal papers, the White House NSF Presidential Faculty Fellow award, the URSI Issac Koga Gold Medal, the ASEE/HP Terman Medal and the German Humboldt Research Award. She was named IEEE MTT Distinguished Educator in 2013. She has a husband physicist and three daughters who can all solder.

Pizza from 12.30pm – 2nd floor foyer