



IEEE Okanagan Subsection

Presents

Dr. Thomas Johnson

School of Engineering, UBC Okanagan

Radio Frequency Power Amplifier Technology: Past, Present, and Future



Time & Date: 4:30pm-5:30pm, May 11, 2011

Location: ART 202, UBC Okanagan

Talk Abstract:

Radio frequency (RF) technology has evolved from the first implementations using vacuum tubes in the 1920s to mass produced solid state power amplifiers that are now incorporated in virtually every wireless transmitter. A significant factor which has driven innovation in RF power amplifier technology has been the quest to improve power efficiency. Although power efficiency is a significant metric, in most applications such as communication systems, power efficiency must be balanced with distortion and bandwidth requirements. Many of the innovations in RF power amplifier technology have been coupled with architectural changes in the transmitter where the classical amplifier subsystem has been augmented with signal processing and active power supplies to dynamically control bias points in the RF circuits. In this presentation, we review some novel transmitter architectures and concepts that have been used to improve power efficiency, and then look at current research and what might be expected in future RF power amplifier designs.



Speaker Biography:

Thomas Johnson joined the School of Engineering at the University of British Columbia, Okanagan in July 2009. He was formerly a Technical Fellow at Pulsewave RF in Austin, Texas where he was collaborating in the research and development of RF switch-mode power amplifiers and nonlinear feedback linearization techniques for wireless infrastructure applications. He received his Ph.D. in 2007 from Simon Fraser University where his research focused on the analysis of power efficiency in RF switch-mode amplifier architectures employing bandpass delta-sigma modulation. Dr Johnson received his MASc in 2001, and contributed to the invention of wideband feedforward linearization techniques, and DSP algorithms for calibrating and adjusting multitap RF equalizers. Prior to graduate studies, he spent twelve years as a technical lead in various companies including ADC Telecommunications, MPR Teltech, and Norsat.