SESSION 1: PLENARY I - RF SWITCHES

Chair: Mariam Sadaka, *Soitec USA*

We live in an increasingly wireless world, filled with an ever expanding variety of smart phones, W-LANs, WWANs, GPS, and a host of other wireless appliances. Applications of RF technologies continue spreading into new systems like smart grids and e-books and even into entertainment systems and toys. At the core of these wireless systems are RF modules which are powered and enabled primarily by semiconductor devices. Front end module specifications have been made more complex with ongoing evolution of new Cellular standards and band frequencies. Multi-Mode and Multi-Band operation of PA modules is becoming a reality.

Switching and tunable output matching networks can play a pivotal role in this area. Performance requirements such as low insertion loss and high isolation, power handling, and linearity have historically motivated the selection of GaAs. But recently, Silicon-on-sapphire (SOS) and high resistivity Silicon-on-Insulator (SOI) technologies have also been evaluated for RF switch applications.

This year's plenary session addresses both Compound Semiconductor and CMOS-based RF switches. Our first paper by Mitsuhiro Nakamura from Sony describes the integration of E-Mode P-Channel JFETs into their GaAs E/D-Mode JPHEMT technology for multi-band/mode antenna switch applications. This technology enables fabrication of low power consumption GaAs logic circuits and low loss antenna switches on a single chip. Next paper by Dylan Kelly from Peregrine discusses the golden age of mobile wireless driven by the explosive growth of mobile wireless data traffic. He explains how UltraCMOS on Silicon-on-sapphire (SOS) technology is addressing the challenges. The session concludes with Randy Wolf of IBM describing a highly resistive substrate CMOS on SOI technology for wireless front-end applications, which shows a comparable performance to GaAs pHEMT and to SOS technologies.

Return to TOC