

New Mexico State University Klipsch School of Electrical & Computer Engineering

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CMOS UWB Circuits and Systems for 22-29 GHz Short Range Radar

Abstract

Ultra-wideband (UWB) technology has attracted a lot of academic and industrial interests recently. In 2002, the United States Federal Communications Commission (FCC) regulated the band 22-29 GHz for the UWB automotive radar system applications with the maximum power emission of -41.3 dBm/MHz and the center frequency of the power spectral density (PSD) greater than 24 GHz. The 22-29 GHz UWB automotive radar is defined as the short range radar (SRR) which can be operated with high range resolution and find the applications such as anti-collision sensing, adaptive cruise control (ACC) support, blind spot detection, and parking aid. In this talk, a CMOS UWB SRR system design using a Gaussian envelope impulse signal, which is spectrally efficient and achieves a 10cm range resolution, will be presented. In addition, the design of circuit components for the UWB radar transceiver using IBM CMOS 90 nm technology will be covered.

Speaker: Sungyong Jung received Ph.D in electrical engineering from Georgia Institute of Technology. He was an advanced circuit engineer in Quellan Inc. developing optical transceiver to improve spectral efficiency. Currently, he is working as an associate professor at University of Texas at Arlington (UTA). At UTA, he has established analog and mixed signal integrated circuit (AMIC) design laboratory, which specializes in IC design for UWB wireless systems and optical communications.

Date: October 9, 2008

Time: 4:00 pm

Location: Thomas & Brown Hall 104

Refreshments served after the talk

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