



## IEEE SSCS Distinguished Lecture IEEE SSCS/CASS Atlanta Joint Chapter Seminar

**Title:** Blocker Tolerant Software Defined Receivers

**Speaker:** Dr. Hooman Darabi (Sr. Technical Director and Fellow at Broadcom)

**Affiliation:** Broadcom, Irvine, California, USA

**Abstract:** The cost concerns of the market today dictate several stringent requirements on the radios such as high level of integration, small die size, and low power consumption. Moreover the spectrum availability has become a recent challenge which ultimately translates into cost as well. In this presentation various receiver architectures suitable for SDR and cognitive applications is proposed and discussed. To break the traditional noise-linearity-matching trade-off, we offer an alternative topology that uses two down-conversion paths with no voltage amplification prior to baseband filtering. Using wideband noise-cancelling, an 80 MHz to 2.7 GHz prototype of the receiver achieves sub-2 dB noise figure that degrades to 4.1 dB in the presence of an out-of-band 0 dBm blocker. Out-of-band IIP3 is measured at +13.5 dBm, and P-1dB blocker compression is close to 0 dBm, making the topology very attractive for SAW-less cognitive radios.

**Speaker Biography:** Hooman Darabi received the BS and MS degrees both in Electrical Engineering from Sharif University of Technology, Tehran, Iran, in 1994, and 1996 respectively. He received the Ph.D. degree in electrical engineering from the University of California, Los Angeles, in 1999. He is currently a Sr. Technical Director and a Fellow with Broadcom Corporation, Irvine, CA, as a part of mobile and wireless group. His interests include analog and RF IC design for wireless communications. Hooman is an IEEE distinguished lecturer.

**Seminar Time:** 1:30PM-3:00PM on October 25<sup>th</sup> 2013

**Seminar Location:** Technology Square Research Building (TSRB), 1st Floor (Rm132-134), 85 5th Street NW, Atlanta, GA 30308

**Organizer:** Dr. Hua Wang, IEEE SSCS/CASS Atlanta Joint Chapter Chair, Assistant Professor, School of Electrical and Computer Engineering, Georgia Institute of Technology.

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**Light refreshments will be served at the seminar.**