



## Keynote Speech III

### RF Sigma-Delta ADC: Realizing the Cognitive Radio Dream

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#### ABSTRACT

In recent years, the number of RF communication standards increased drastically. In order to save area, cost and power consumption, a large effort is made to replace several dedicated RF receivers with one multi-standard receiver. One way, to achieve this goal, is to digitize the RF signal as close as possible to the antenna in order to perform most of the signal processing in the easily programmable digital domain. In this work, we propose an RF receiver architecture based on an RF Bandpass Sigma-Delta Analog-to-Digital Converter. We have proposed many techniques and methods for the efficient realization of integrated LC-Based bandpass Sigma-Delta ADCs. Several Chips have been fabricated in 130nm and 65nm CMOS processes to validate the proposed design methods and architectures. The fabricated circuits have different center frequencies ranging from 433MHz to 3 GHz. Measurements results show that the proposed technique is very promising for Software Defined and Cognitive Radio applications.