

ACRC Seminar

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1061, Meyer Building
Faculty of Electrical Engineering

N-Path Filters and Mixer First Receivers – A Review



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Abstract

Flexibly programmable high-Q RF-filtering is crucial to realize highly reconfigurable CMOS radio receiver ICs. If such filters operate directly on the limited selectivity antenna signal, high blocker tolerance is demanded for interference robustness and to handle TX leakage in Frequency Division Duplex scenarios. Passive switch-R-C circuits, also known as N-path filters, commutated filters or frequency translated filters, can offer tunable RF-filter functionality where the switch-frequency defines the RF-filter center frequency. It can also be combined with frequency conversion in mixer-first switch-R-C receivers. This talk will review developments in this field over the last decade with special focus on ways to improve the linearity, selectivity and blocker tolerance.

Bio

received his PhD from Twente University in Enschede, The Netherlands, in 1997 where he is currently an Associate Professor. He teaches Analog and RF CMOS IC Design and guides research projects focussing on Software Defined Radio and Beamforming. Eric served as Associate Editor for IEEE TCAS-I, TCAS-II and the IEEE Journal of Solid-State Circuits (JSSC), as TPC member of ISSCC (2011-2016) and the RFIC Symposium (2011-..), and as SSC Distinguished Lecturer (2014/2015). He holds >10 patents, authored and co-authored >175 refereed journal and conference papers. He was recognized as top paper contributor to ISSCC, for >20 papers over 1954-2013, and was a co-recipient of the ISSCC 2002 and the ISSCC 2009 "Van Vessel Outstanding Paper Award".