

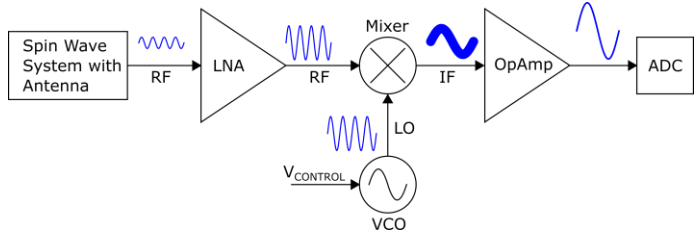
# Design of On-Chip Readout Circuitry Components for Spin-Wave Devices

## Background

Spin wave based devices, one of the promising candidates for beyond-CMOS computing, provide both Boolean and non-Boolean data processing for high-frequency and low power applications. Current spin

wave detectors require external network analyzers connected to the wave guides or Spin Hall Effect (SHE) devices. However, on-chip sensing is still necessary for practical applications.

The institute for Technical Electronics is developing an integrated On-Chip Oscilloscope (OCO) in 28nm CMOS technology containing a suitable sensor and readout circuitry detecting and characterizing spin-waves in the 5-50 GHz range.



## Your job

- Development of one of the following readout circuitry components
  - Low Noise Amplifier (LNA)
  - Mixer
  - Voltage Controlled Oscillator (VCO)
  - Operational Amplifier (OpAmp) + Analog-to-Digital Converter (ADC)
- Evaluation and further optimization regarding robustness against disturbances

## Your profile

- Basic knowledge in analog and RF IC design fundamentals
- Basic experience with Cadence and MATLAB
- Ability to work both in a team as well as independently
- High motivation for the design of analog and RF ICs

## What we offer you

- Possibility to gather experience in the state of the art 28nm CMOS technology
- Immediate collaboration in a scientific research topic
- Possibility to participate in publication by achieving distinguished simulation results

**Interested? Don't hesitate to ask or apply directly per mail**

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