Universität Stuttgart
Institut für Intelligente Sensorik und
Theoretische Elektrotechnik

Master/Research Thesis

Design of a VCO and Frequency Tripler in 130 nm SiGe BiCMOS for cryogenic temperatures

A voltage-controlled oscillator (VCO) is an electronic oscillator whose oscillation frequency is controlled by a voltage input. A frequency multiplier is an electronic circuit that generates an output signal and that output frequency is a harmonic (multiple) of its input frequency. In this projet you are going to design the VCO at 25 GHz and a frequency tripler at the output of the VCO in 130 nm SiGe BiCMOS technology for the cryogenic temperatures.

You will learn the basics of designing RF circuits in SiGe BicMOS using Agilent's Advanced Design System (ADS), an industry-standard software design tool. You will compare different topologies using circuit simulations and select the most appropriate topology. You will then complete the design including the physical layout and post-layout simulations.

Required:

- ✓ Basic understanding of microwave engineering, analog circuit design, RF circuit design, and communication systems
- ✓ Basic experience with the simulation of analog circuits

Duration: 3/6 months

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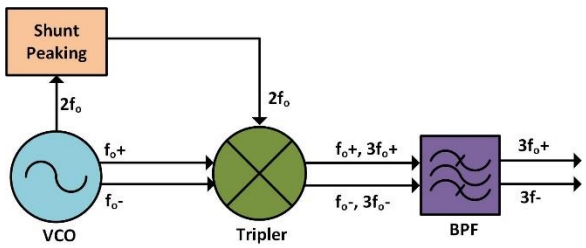

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