

Masterarbeit / Master's Thesis

Feel free to ask for a German description

Frequency Multiplier MMICs for Terahertz Electronic Systems

Context

- Frequency multipliers are used for RF signal generation and to supply the local oscillator signal to heterodyne up- and downconverters in high resolution radar imaging and high data rate wireless communication systems
- The state-of-the-art monolithic integrated circuit technology by Fraunhofer IAF allows to push operating frequencies of active, transistor-based MMICs into the submillimeter and THz frequency range.

Goals

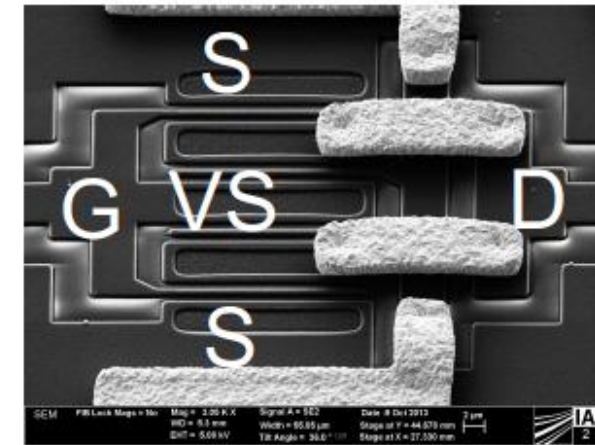
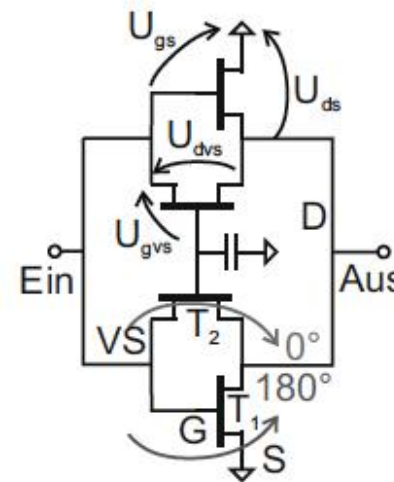
- Design of active, ultra-high frequency multiplier MMICs
- Redesign of 240 and 300 GHz frequency triplers and evaluation of measurement results
- Explorative design of a 600 GHz to 1.2 THz frequency doubler

Pre-Requisites

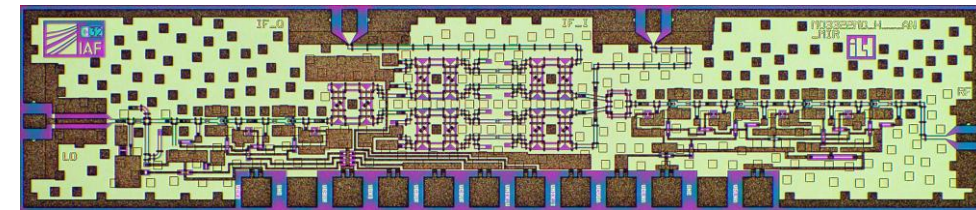
- Knowledge in analog circuit design and high frequency theory and techniques

Contact

Iulia Dan
 Pfaffenwaldring 47 – ETI 1 Room 1.306
 iulia.dan@ilh.uni-stuttgart.de
 Tel.: 0711 / 6 85 – 69024



[1]



[2]

[1] U. Lewark et.al., “A miniaturized unit cell for ultra-broadband active millimeter-wave frequency multiplication,” IEEE Transactions on Microwave Theory and Techniques, 2014
 [2] I. Kallfass et. al. “Mmic chipset for 300 ghz indoor wireless communication“ COMCAS 2015