

# **Universität Stuttgart**

Institut für Robuste Leistungshalbleitersysteme

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RF and mmWrange Design of Frontend Components for an Ultra-Wideband Application in a 22nm FD-SOI CMOS Process

# Forschungsarbeit / Masterthesis

Nowadays at times of 5G, IoT and autonomous driving systems and subsystems are becoming more and more important in the mmW-range. In order to shrink the size of those systems Globalfoundries delivers with his 22nm process a cutting-edge technology and is leading in performance in the CMOS domain.

Core of this thesis: **DESIDE YOURSELF!** 

The topic of this thesis is totally up to you. You can design one or more components of a whole Transceiver system. Investigate the technology limits and decide witch topology of a mixer, power amplifier, low-noise amplifier, switch, multiplier is most suitable to achieve the best system performance!

# FD-SOI - Fully-Depleted Silicon-On-Insulator - Planar process similar to bulk Fully Depleted Ultra-thin Channel for Low Leakage Thin Buried Oxide Insulator

courco

https://www.globalfoundries.com/sites/default/files/product-briefs/pb-22fdx-soi-25-web.pdf

## Goals of this work

- design of at least one transceiver component
- make a system evaluation
- evaluation of different topologies (active and passive)
- investigation of the limits of this technology
- is the system performance reachable?

### You are perfectly suited if:

- you are interested in integrated circuit-design
- you have a good knowledge in the RF/mmW domain
- you have already experience with developing tools like Cadence or ADS

If you are interested and need more information just feel free to contact me!

Language: German/English



