

# Development of Design Automations for RF Circuits

## Background

In the field of electronic design and development, Automated Circuit Design (ACD) has become a crucial tool for faster, more efficient, and cost-effective circuit design processes. Within the last years, the chair of High Frequency Electronics has developed a universal and fast approach for the synthesis of complex RF-power amplifier and low noise amplifier circuits. The automation tool shall be extended with further RF circuits like switches, frequency converters, attenuators etc.

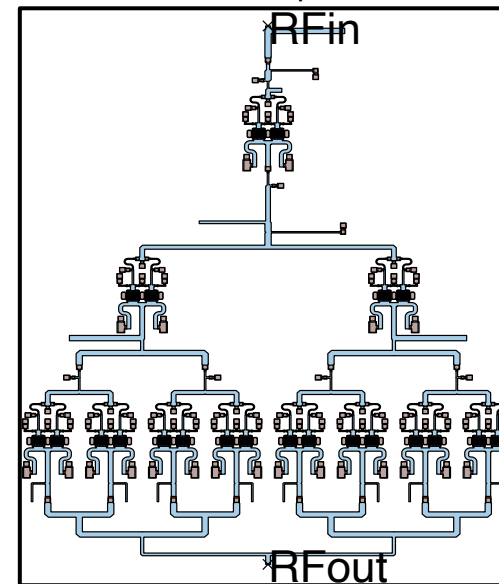
## Tasks

The students' task is to investigate RF circuits in terms of automation based on the approach developed at HFE and implement these into the design automation. For this, the student needs to work through the following tasks:

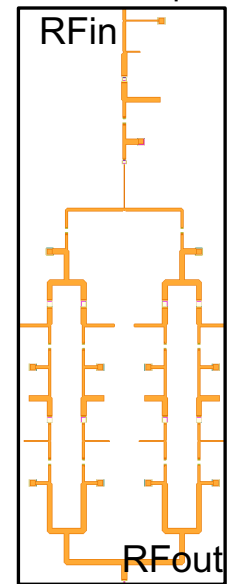
- Familiarisation with the automation approach developed at HFE
- Literature survey on RF circuit architectures for the chosen component
- Development of the automated design process for the RF circuit
- Carrying out case studies based on the implemented extension by synthesizing various circuits for various applications (frequency, power level, technology node etc.)

## Automatically Designed Amplifiers

K-Band Power Amplifier: 45 dBm



Sub-THz Amplifier



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