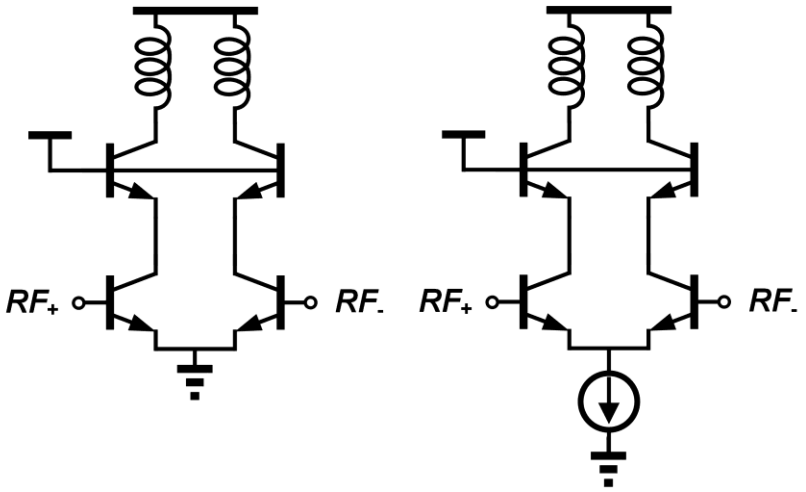
Karlsruher Institut für Technologie

Bachelor/ Master Thesis

Design and Comparison of Differential/ Pseudo-differential RF Amplifier in SiGe Process

Pseudo-differential pair is widely used in band-pass RF amplifiers. For CMOS process, it has been proven that the linearity of a pseudo-differential amplifier outruns that of a differential-pair amplifier. However, for SiGe HBT devices, few analysis has been done.

In this thesis, a differential and a pseudo-differential RF amplifier will be first designed in 0.13-µm SiGe BiCMOS process. Then, key matrics such as AM-AM, AM-PM, IMD_3 and PAE should be compared. In addition, a theoretical analysis on the nonlinearity is encouraged to be done.



Tasks:

- Circuit desgin and simulation with Cadence SpectreRF or Keysight ADS
- Parasitics extraction using QRC and EM simulation using Momentum
- Layout in Cadence Virtuoso (DRC, LVS check)

Ansprechpartner

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